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DxMONITOR

Animal Health Report

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Spring 1995

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Diseases of animals

The DxMONITOR Animal Health Report is distributed quarterly as part of the Veterinary Diagnostic Laboratory Reporting System (VDLRS). The VDLRS is a cooperative effort of the American Association of Veterinary Laboratory Diagnosticians (AAVLD), the United States Animal Health Association (USAHA), and the United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA:APHIS). The purpose of the DxMONITOR is to report trends of confirmed disease diagnoses and animal health data collected from veterinary diagnostic laboratories and the USDA:APHIS.

Caution should be taken when extrapolating information reported in the DxMONITOR due to the inherent biases of submitted specimens. Trends should be interpreted with care. A given diagnosis/agent may be the result of a true increase in prevalence, or, it may only reflect a new State testing requirement, a heightened awareness of the condition, or an increase in the number of laboratories reporting data.

Test results are presented as the number positive over the total number tested per State on U.S. maps for the current and previous quarter; and the ratio of the current quarter's positive compared to the average positive for the previous four quarters, by region, plotted on a log base 2 scale. Laboratory reported diseases in Section I are reported as tests. Diseases in Section II are reported as accessions. Increases may be a reflection of the addition of new laboratories and/or laboratories reporting additional diseases not previously reported.

New for this issue: The disease reporting period for this issue was October 1 through December 31, 1994. Data have been reported by 29 diagnostic laboratories in the States indicated on the facing page (two on hiatus), the National Veterinary Services Laboratories (NVSL), and the APHIS:Veterinary Services program staffs.

DxMONITOR Animal Health Report

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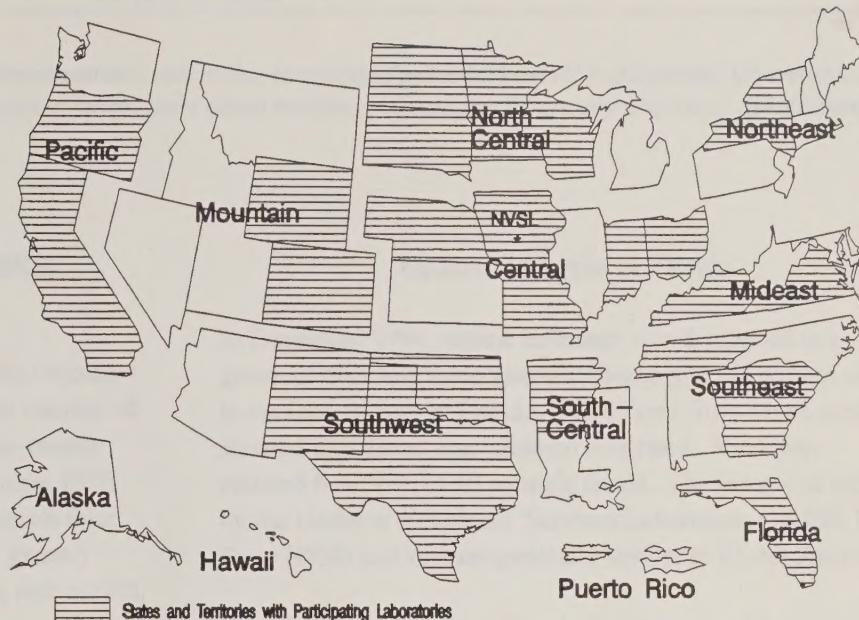
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**Articles may be printed with
acknowledgment of source.**

REGIONS OF THE VDLRS

Abbreviations for regions used in this issue are:

AK = Alaska
CL = Central
FL = Florida
HI = Hawaii
MDE = Mideast
MTN = Mountain
NOC = North-Central
NOE = Northeast
PC = Pacific
PR = Puerto Rico & U.S.
Virgin Islands
SOC = South-Central
SE = Southeast
SW = Southwest
UNK = Unknown



Contributing Laboratories

The following laboratories have contributed data reported in the DxMONITOR Animal Health Report. Thanks to all of the individuals at these laboratories who have worked to make this report possible.

- Arkansas Livestock and Poultry Commission Diagnostic Laboratory (Little Rock, AR)
- California Veterinary Diagnostic Laboratory System (Davis, CA)
- Colorado Veterinary Diagnostic Laboratories, Colorado State University, (Fort Collins, CO)
- Bureau of Diagnostic Laboratories, Florida Department of Agriculture (Kissimmee, FL)
- Veterinary Diagnostic Laboratory, University of Georgia (Athens, GA)
- Veterinary Diagnostic and Investigational Laboratory, University of Georgia (Tifton, GA)
- Veterinary Diagnostic Laboratory, Iowa State University (Ames, IA)
- National Veterinary Services Laboratories (Ames, IA)
- Animal Disease Diagnostic Laboratory, Purdue University (West Lafayette, IN)
- Breathitt Veterinary Center, Murray State University (Hopkinsville, KY)
- Livestock Disease Diagnostic Center, University of Kentucky (Lexington, KY)
- Minnesota Veterinary Diagnostic Laboratory, University of Minnesota (St. Paul, MN)
- Veterinary Medical Diagnostic Laboratory, University of Missouri-Columbia (Columbia, MO)
- Veterinary Diagnostic Center, University of Nebraska-Lincoln (Lincoln, NE)
- Veterinary Diagnostic Services, New Mexico Department of Agriculture (Albuquerque, NM)
- New York State Veterinary Diagnostic Laboratory, Cornell University (Ithaca, NY)
- North Dakota Veterinary Diagnostic Laboratory, North Dakota State University (Fargo, ND)
- Reynoldsburg Laboratory, Ohio Department of Agriculture (Reynoldsburg, OH)
- Oklahoma Animal Disease Diagnostic Laboratory, Oklahoma State University (Stillwater, OK)
- Veterinary Diagnostic Laboratory, Oregon State University (Corvallis, OR)
- Puerto Rico Animal Diagnostic Laboratory (Dorado, PR)
- Clemson Diagnostic Laboratory, Clemson University (Columbia, SC)
- Animal Disease Research and Diagnostic Laboratory, South Dakota State University (Brookings, SD)
- C.E. Kord Animal Disease Diagnostic Laboratory, Tennessee Department of Agriculture (Nashville, TN)
- Pan American Veterinary Laboratories, (Austin, TX)
- Texas Veterinary Medical Diagnostic Laboratory, Texas A&M University (College Station, TX)
- Bureau of Laboratory Services, Virginia Department of Agriculture and Consumer Services (Richmond, VA)
- Central Animal Health Laboratory, Wisconsin Dept. of Agriculture, Trade and Consumer Protection (Madison, WI)
- Wyoming State Veterinary Laboratory (Laramie, WY)



Lab Notes

This section presents short descriptions of current investigations, outbreaks, or events of potential interest to diagnostic laboratories. The purpose is to provide a forum for timely exchanges of information about veterinary diagnostic laboratory activities. Submissions from nonparticipating laboratories are welcome.

Eastern Equine Encephalomyelitis (EEE) Florida 1994

During 1994, the number of serologically diagnosed equine cases of EEE in Florida was about the same as the number of cases reported in 1993. The numbers of month-by-month cases for each year are shown in Table 1. In addition, EEE was serologically diagnosed in 11 non-equine animals (one bear, one deer, two antelope, four emu, and three geese.) Five EEE viral isolations were made (two equids, one ostrich, and two emu.)

Table 1.

	1993	1994
Jan	2	1
Feb	0	0
Mar	2	1
Apr	5	4
May	9	6
Jun	12	4
Jul	26	27
Aug	9	10
Sep	0	0
Oct	0	0
Nov	3	2
Dec	0	9
Total	68	64

Contact: Harvey Rubin, Florida Department of Agriculture and Consumer Services, Kissimmee, FL, (407) 846-5200.

Neospora-Associated Abortion Diagnosed in Utah

The Utah State University Provo Veterinary Diagnostic Laboratory reported diagnosing a *Neospora*-associated abortion in a Utah dairy cow in October 1994. This was their first confirmed case.

Contact: E. Jane Kelly, Utah State University Provo Veterinary Diagnostic Laboratory, Provo, UT, (801) 373-6383.

Equine Influenza in Florida

In December 1994, equine influenza was diagnosed in a group of two- and three-year-old thoroughbreds stabled on a horse farm in central Florida. Paired sera from seven animals showed significant convalescent titer rises. Virus was isolated from five of 10 animals tested. The virus was typed by the National Veterinary Services Laboratories (NVSL) as Type H3N8 and was antigenically similar to EI-A2 Kentucky.

Contact: Harvey Rubin, Florida Department of Agriculture and Consumer Services, Kissimmee, FL, (407) 846-5200.

Colorado Declared Bovine Brucellosis Free

The United States Department of Agriculture (USDA) declared Colorado free from bovine brucellosis on January 30, 1995. Colorado joined 33 other States and Puerto Rico and the Virgin Islands as bovine brucellosis free. As of November 1994, there were 146 herds under quarantine for bovine brucellosis in the U.S.

Source: USDA Press Release Number 0066, January 30, 1995.

USDA's Animal and Plant Health Inspection Services (APHIS) Moves Central Offices

The central offices of the USDA:APHIS moved from Hyattsville, Maryland, to Riverdale, Maryland, in January and February of 1995. The general address is now 4700 River Road, Riverdale, Maryland, 20738. Telephone and FAX numbers have the same 301 area code, but the exchange is now 734 rather than 436.

NOTE: The telephone area code for the Fort Collins, Colorado, area was 970 rather than 303 as of April 1995.

Contact: General Number for Riverdale, MD, (301) 734-8010.



I. Patterns of Selected Diseases

Section I contains information on diseases of interest as designated by List B of the Office International des Epizooties (OIE). The purpose of reporting these data is to monitor confirmed cases of specific diseases on a State-by-State or regional basis so that national distributions can be mapped and evaluated.

Bovine Leukosis Virus	4
Paratuberculosis	6
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Equine Encephalomyelitis	13
Porcine Reproductive and Respiratory Syndrome	14
Swine Brucellosis	Data not available
Pseudorabies	Data not available

Key to Figures in this Section:

- Deviation bar charts show the base 2 logarithmic transformation of the ratio of positive tests for the current quarter to the mean positive tests for the previous four quarters. A value of '0' is equivalent to a ratio of '1,' indicating no change compared to historical values. Each incremental unit change indicates a doubling (positive change) or halving (negative change) of the present value compared to the mean of the historical values.
- Maps present data in two manners. Maps of federally regulated conditions show numbers of herds. Maps of conditions reported by participating laboratories show total number of positive tests over total number of tests run, per State, for the current and previous quarter.
- In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.
- Data are presented by region or State of specimen origin and quarter of the calendar year for specimen submission.
- Results reported with dates not corresponding to the current quarter are the result of different testing intervals or related to different reporting times.
- See map on inside front cover for regions.
- Test abbreviations used in this section:
AGID = Agar gel immunodiffusion
ELISA = Enzyme linked immunosorbent assay
- CF = Complement fixation
IFA = Indirect fluorescent antibody

Bovine Leukosis Virus (BLV)

Criteria: AGID or pathology.

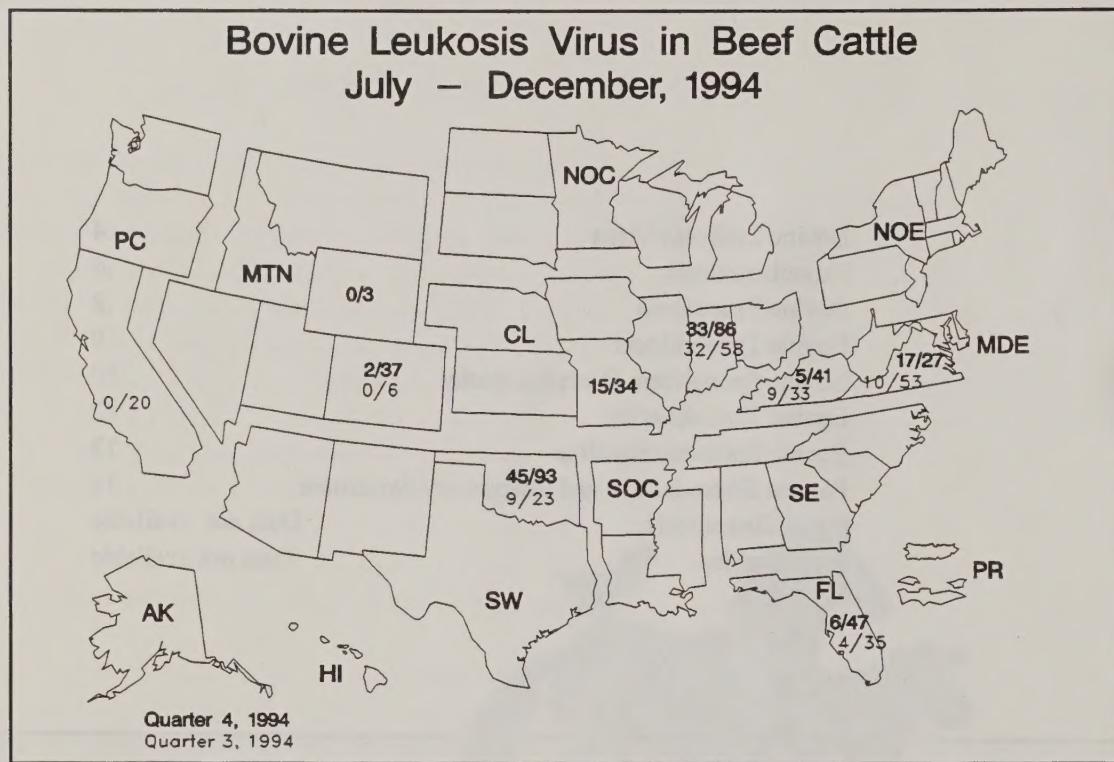


Figure 1

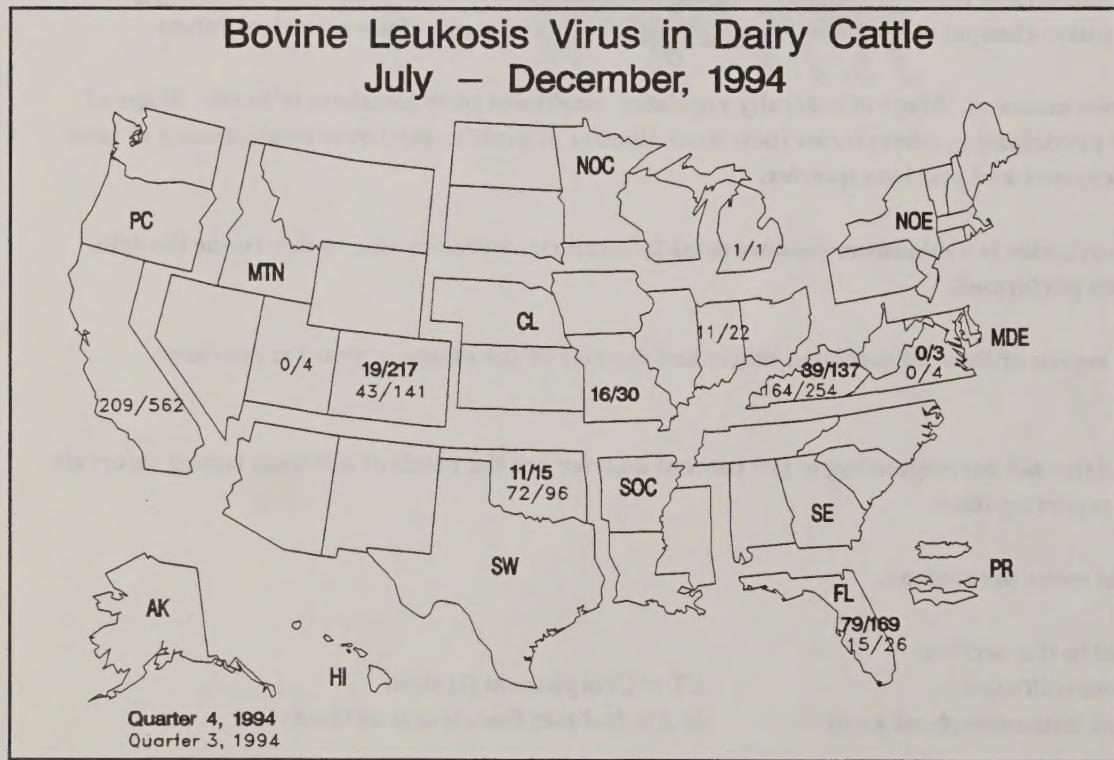


Figure 2

Bovine Leukosis Virus in All Cattle

July – December, 1994

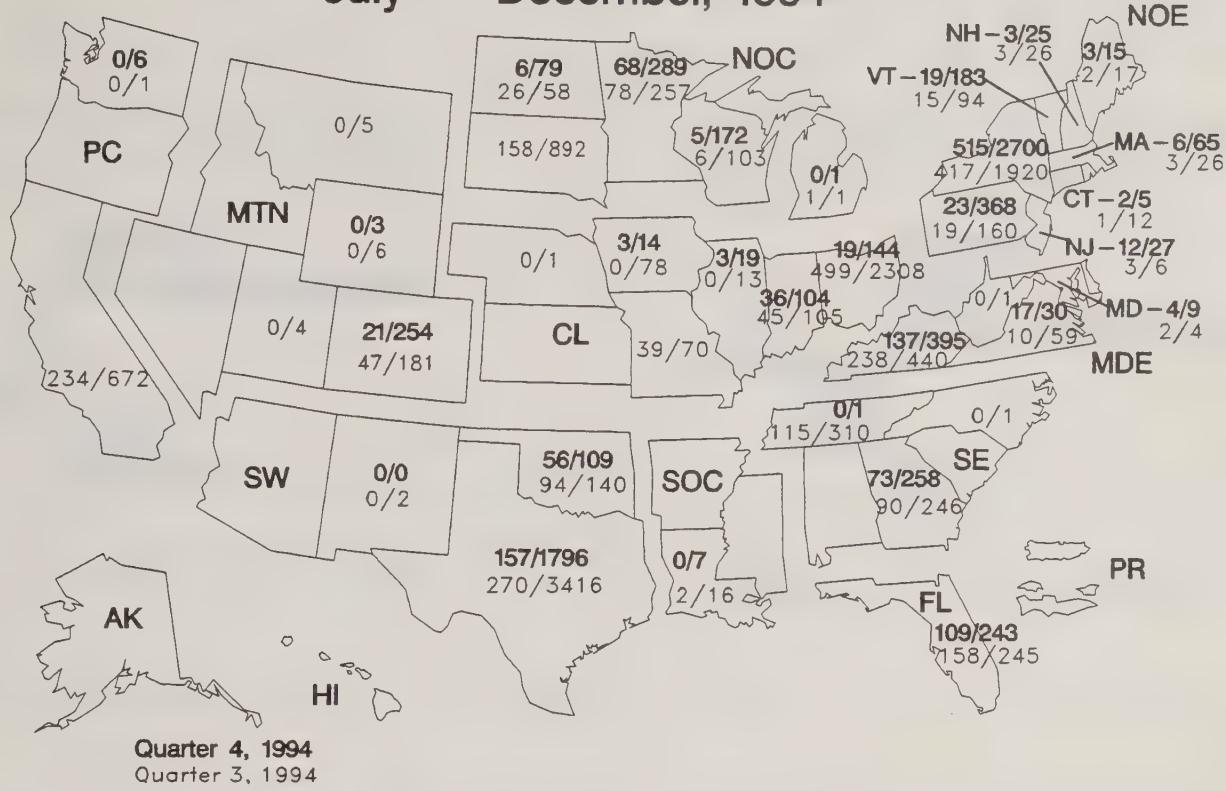


Figure 3

For the fourth quarter of 1994 (October through December), there were 1,334/7,401 (18.0 percent) positive tests for bovine leukosis virus (BLV) overall compared to 2,575/11,896 (21.7 percent) for the third quarter of 1994 and 2,618/11,448 (22.9 percent) for the fourth quarter of 1993. Figures 1 through 3 show the distribution of AGID test results for BLV for the third and fourth quarters of 1994 in beef, dairy, and all cattle by State. Figure 3 includes results where the class was unknown.

In addition to the AGID results reported above, two States reported results for histopathology or multiple tests. Georgia reported two positives for the fourth quarter of 1994, and Missouri reported 35 positives of 78 tested for the same period.

Figure 4 shows the ratio of total positives for the fourth quarter of 1994 compared to the average total positives for the previous year by region. The apparent decreases in the Central, North-Central, and Southeast regions are at least partially due to one laboratory in each region not reporting data for this quarter.

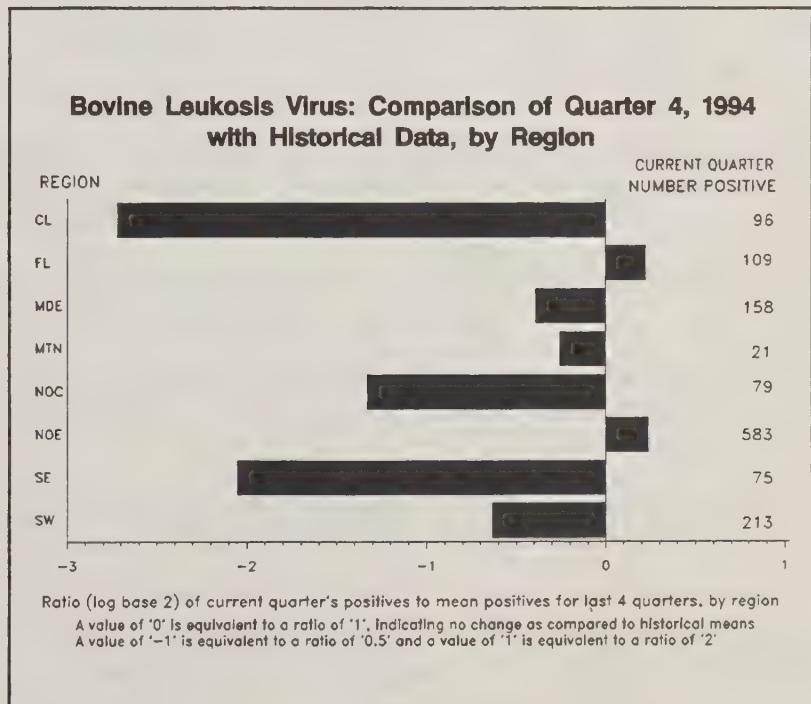


Figure 4

Note: States with no values are nonreporting States.

□ Paratuberculosis

Criteria: Culture, histopathology, DNA probe, AGID, ELISA, or CF

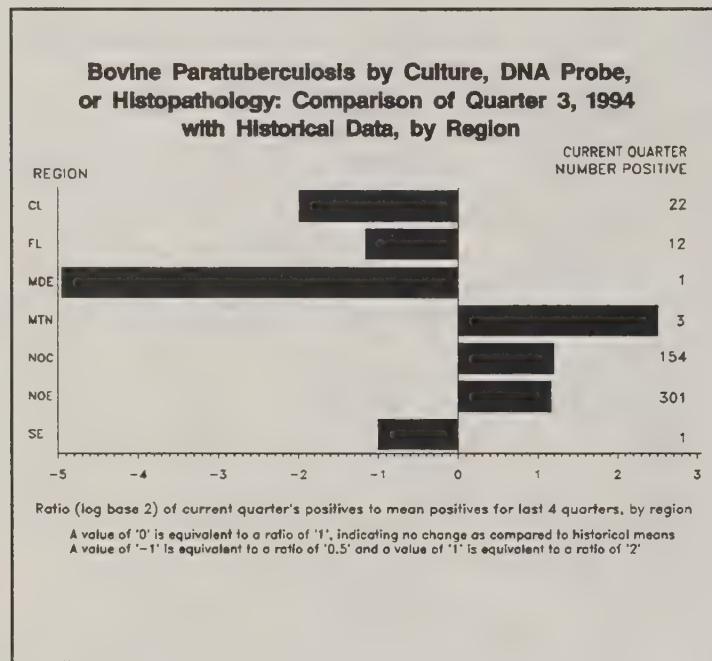


Figure 5

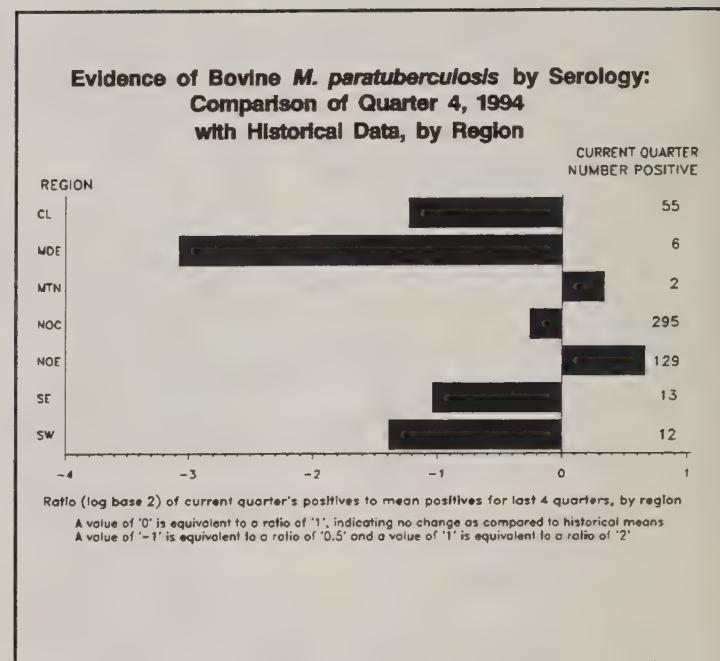


Figure 6

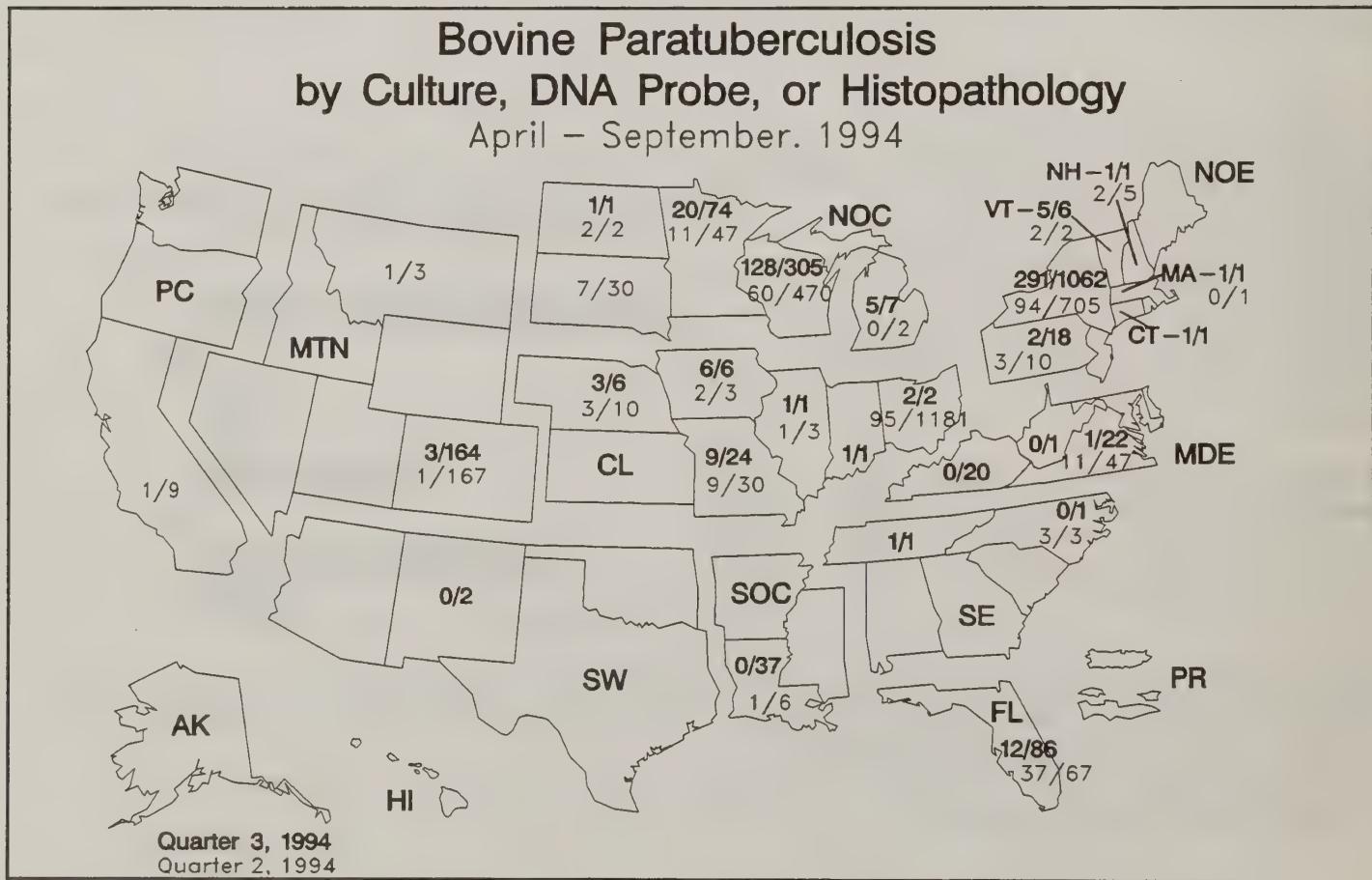


Figure 7

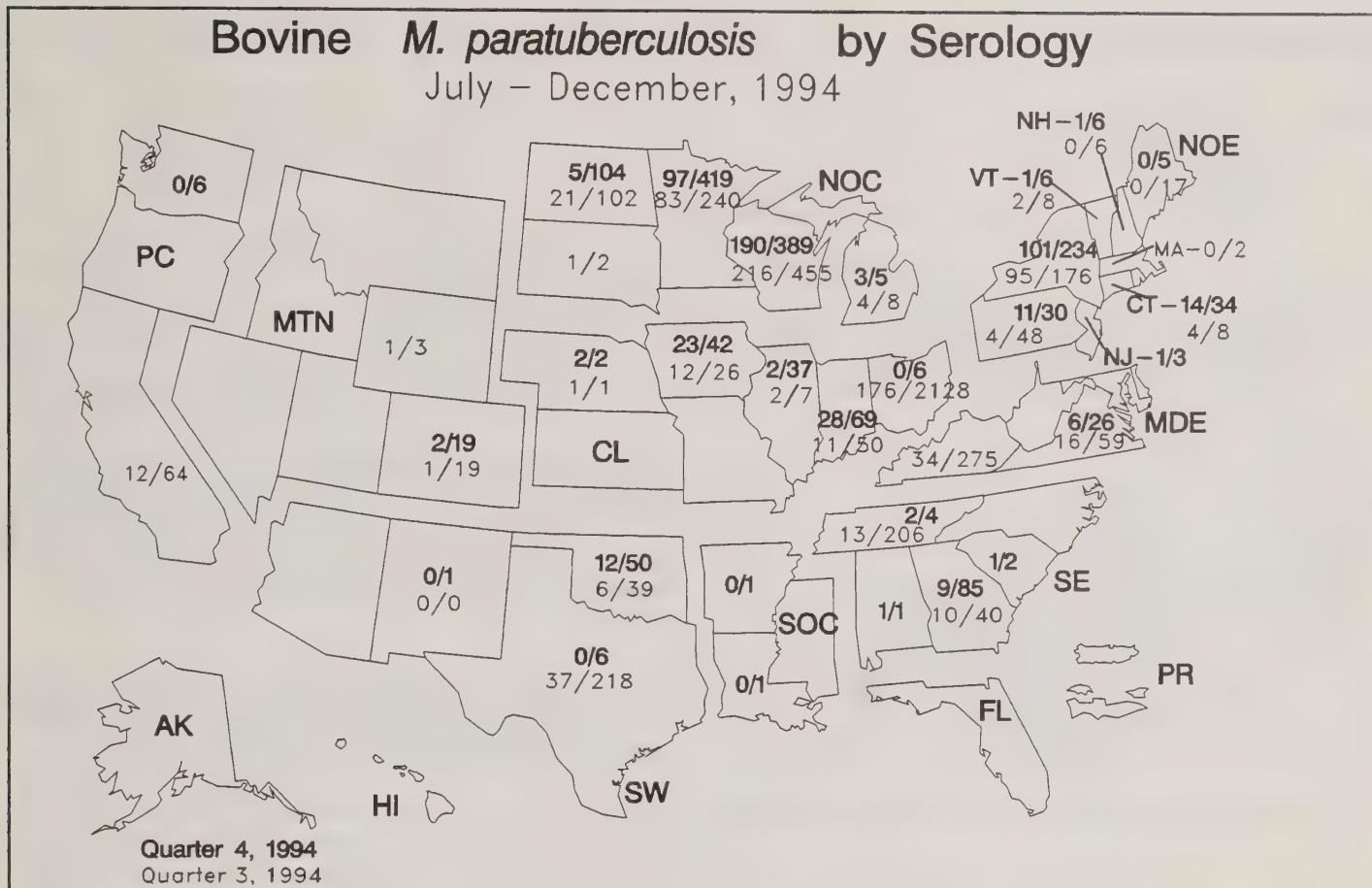


Figure 8

Bovine: Figure 5 shows the ratios of the positives for the third quarter of 1994 to the average number of positives for the previous four quarters. Data represent paratuberculosis culture, DNA probe, and histopathology by region. Ratios for paratuberculosis serology positives for the fourth quarter of 1994 compared to the previous four quarters are shown in Figure 6.

Figure 7 shows culture, DNA probe, and histopathology results for bovine paratuberculosis for the second and third quarters of 1994 by State. Overall positives for the third quarter of 1994 were 494/1,850 (26.7 percent). The apparent decrease in the Mid-East region for both ratio graphs is partially due to at least one laboratory not reporting data for this quarter.

Figure 8 shows the serology results for bovine paratuberculosis for the third and fourth quarters of 1994 by State. Overall positives for the fourth quarter of 1994 were 512/1,593 (32.1 percent).

Caprine: For the third quarter of 1994, three out of 28 (10.7 percent) caprine paratuberculosis culture, DNA probe, and histopathology test results were positive. Minnesota, New York, and Vermont had positive tests. For the fourth quarter of 1994, 64/2,989 (2.1 percent) caprine serology tests were positive.

Ovine: For the third quarter of 1994, zero out of nine ovine paratuberculosis culture, DNA probe, and histopathology test results were positive. For the fourth quarter of 1994, four out of 55 ovine serology tests were positive (7.3 percent). Delaware (1), New York (1), and Oklahoma (2) had positive tests.

Other: Culture results for nontraditional species reported for the third quarter of 1994 were negative for five cervidae, one llama, and one rhinoceros. DNA probe results for the fourth quarter of 1994 were negative for one zoo ruminant. Serology results for the fourth quarter of 1994 were positive for one cervid (WI) and negative for one buffalo.

Note: States with no values are nonreporting States.

□ Bovine Brucellosis

Source: Dr. Mike Gilsdorf
 USDA:APHIS:VS
 Cattle Diseases Staff
 (301) 734-4918

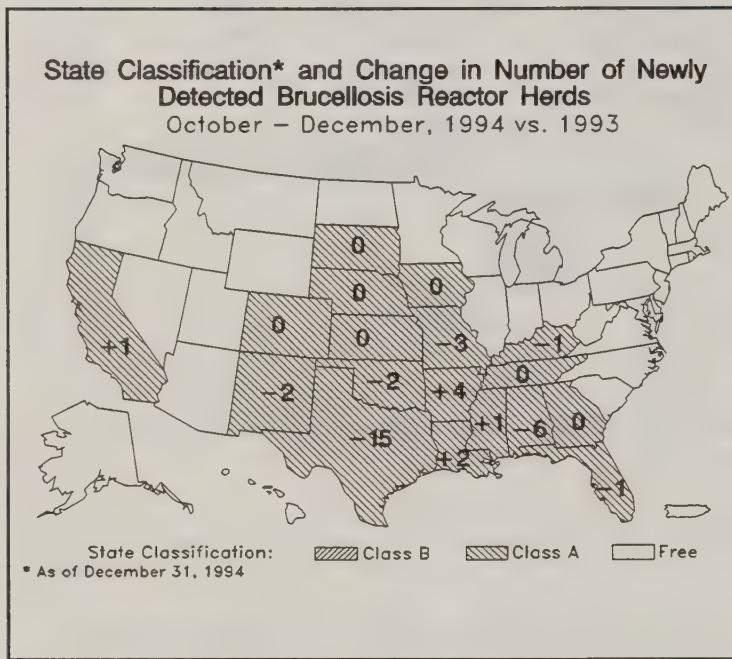


Figure 9

Reactor herd=Herd with at least one case of brucellosis confirmed by serology or culture.

Definition of State Classification:

Class B: More than 0.25 percent, but less than 1.5 percent of all herds infected.

Class A: No more than 0.25 percent of all herds infected.

Free: No infected herds under quarantine during the past 12 months.

There are no Class B States at this time. From October 1 through December 31, 1994, there were no State classification changes for bovine brucellosis. Arkansas, California, Louisiana, and Mississippi had increased numbers of newly detected herds. Alabama, Florida, Kentucky, Missouri, New Mexico, Oklahoma, and Texas had decreased numbers (Figure 9).

For the entire U.S., there were 51 newly detected reactor herds from October through December 1994 (Figure 10), 5 fewer herds than were newly identified from July through September 1994.

The 51 brucellosis reactor herds detected in the fourth quarter of 1994 were 22 fewer than the 73 detected during the same quarter of 1993 (Figure 11). Since 1991, there has been a general downward trend in the number of newly detected herds with an occasional slight increase.

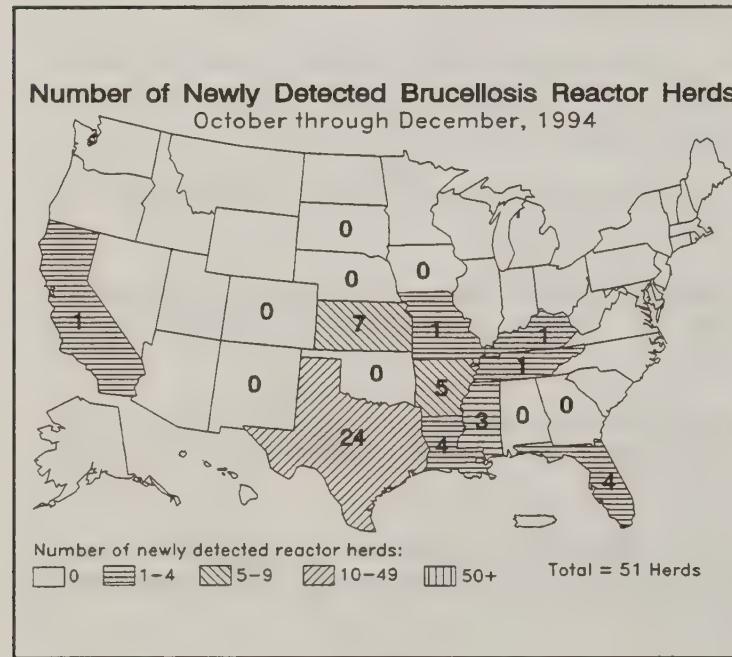


Figure 10

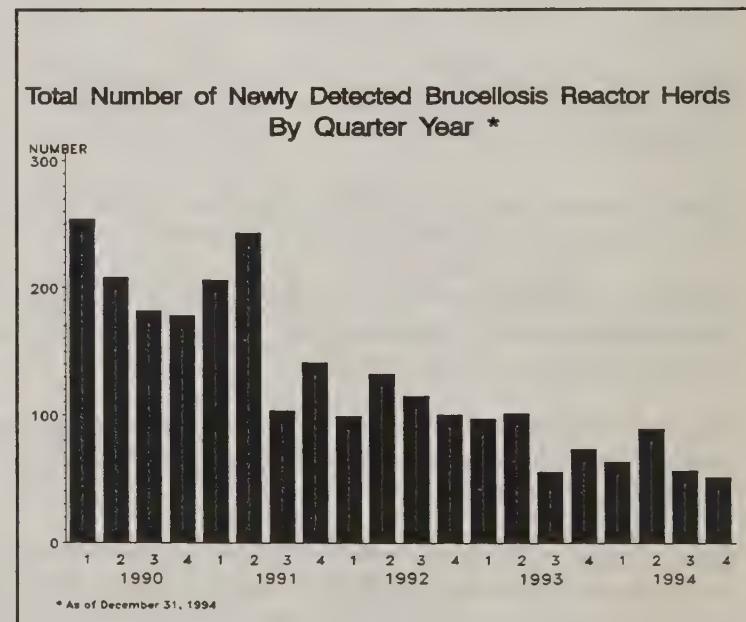


Figure 11

Bovine Tuberculosis

Source: Dr. J. S. VanTiem
USDA:APHIS:VS
Cattle Diseases Staff
(301) 734-8715

Infected = Laboratory confirmed existence of *Mycobacterium bovis*.

Exposed = Animals directly associated with infected animals.

State Classifications:

Modified Accredited: Testing and Slaughter Surveillance programs in effect.

Accredited Free: Testing and Slaughter Surveillance programs have identified no infected bovines for five or more years.

A total of seven cattle or bison herds were known to be infected with bovine tuberculosis as of December 31, 1994 (Figure 12). The number of infected herds dropped in Oklahoma (1), Texas (1), and Virginia (2).

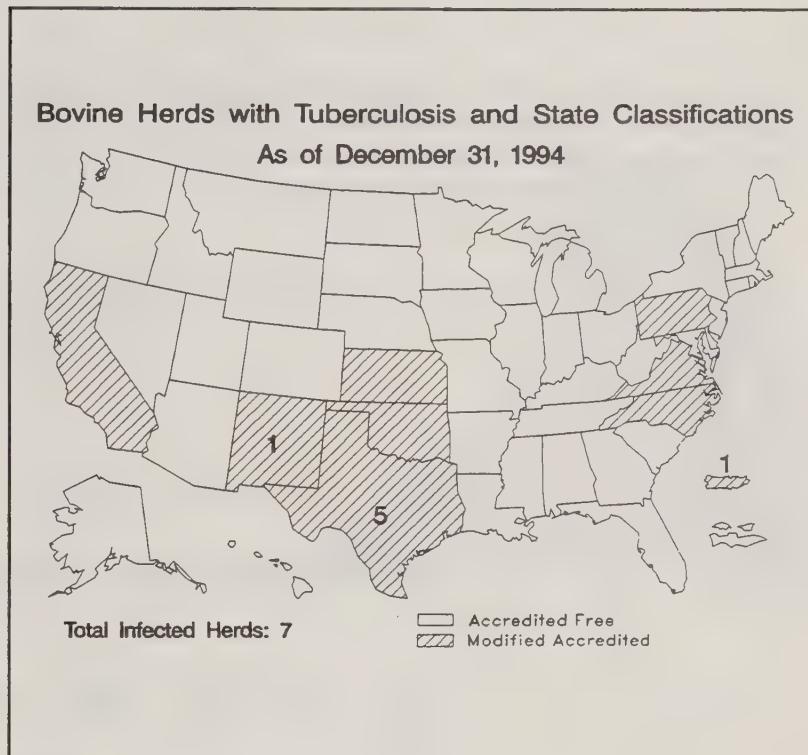


Figure 12

A total of eight herds of cervidae were known to be infected or exposed to bovine tuberculosis as of December 31, 1994 (Figure 13). One new herd was identified in New Mexico. Oklahoma, New York, North Carolina, and Pennsylvania no longer have infected herds.

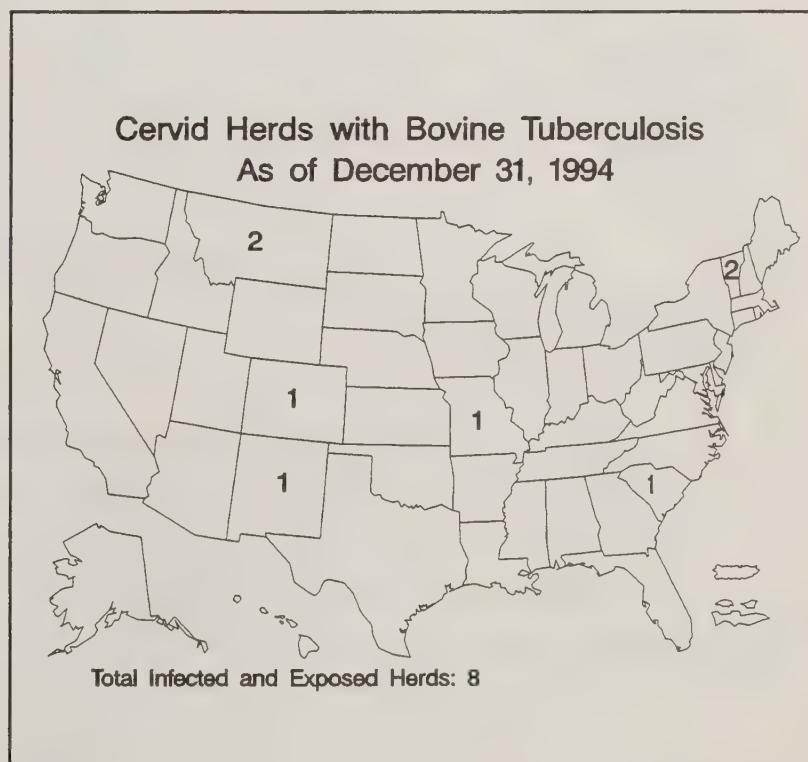


Figure 13

□ Bovine Spongiform Encephalopathy (BSE)

Sources: Dr. T. Chillaud, Office International des Epizooties
 Dr. G. O. Denny, Northern Ireland
 Dr. J. Wilesmith, Great Britain

Between September 30, 1994, and April 7, 1995, the Republic of Ireland reported five additional cases of bovine spongiform encephalopathy (BSE) in native cattle. Between December 20, 1994, and April 7, 1995, Portugal reported two additional native cases, and France reported two additional native cases between September 1, 1994, and April 7, 1995. Switzerland reported 16 additional native cases between November 24, 1994, and March 24, 1995, and Northern Ireland reported 144 additional native cases between December 1, 1994 and March 6, 1995 (Table 2).

Table 2 has been modified from previous issues of the DxMONITOR to incorporate information from the Office International des Epizooties (OIE). No new countries reported cases of BSE imported from the United Kingdom or other countries with endemic BSE.

BSE Cases¹ Worldwide Other Than Great Britain As of April 7, 1995

Country ²	1987 + before	1988	1989	1990	1991	1992	1993	1994	1995	Total
Guernsey	4	34	52	83	75	92	115	69	—	524
Northern Ireland	0	3	30	100	170	333	487	363	43	1529 ³
Jersey	0	1	4	8	14	23	37	22	—	109
Isle of Man	0	6	6	22	67	109	110	55	—	375
Republic of Ireland	0	0	15	14	17	18	16	19	—	99
Switzerland	0	0	0	2	8	15	29	64	19	137 ³
Portugal	0	0	0	1 ⁴	1 ⁴	1 ⁴	3 ⁴	12	1	19
France	0	0	0	0	5	0	1	4	1	11

Countries with imported cases only:

Germany: 4 cases (02/92, 02/94, 04/94, 05/94)

Falkland Islands: 1 case (1989)

Canada: 1 case (01/93)

Italy: 2 cases (10/94)

Denmark: 1 case (07/92)

Oman: 2 cases (1989)

1. Cases in native cattle and cattle imported from the U.K. or another country with endemic BSE.

2. In order of first reported case/diagnosis.

3. Data for Northern Ireland as of March 6, 1995, data for Switzerland as of March 24, 1995.

4. Imported cases.

Data provided by Office International des Epizooties and Northern Ireland

United Kingdom Update:

Great Britain reported 4,892 newly confirmed cases of BSE with 441 more herds affected between December 3, 1994, and March 3, 1995 (Table 3), a decrease from the previous 3-month period. Review of the epidemic curve (Figure 14) reveals a return to the downward curve, indicating that the epidemic continues to decline.

**Bovine Spongiform Encephalopathy
Descriptive Epidemiological Statistics
for Great Britain***
As of March 3, 1995

Total number of confirmed cases:	144,901
Total number of affected herds:	32,122
Proportion of dairy herds affected:	53.0%
Proportion of beef suckler herds affected:	14.5%

* England, Scotland, and Wales

Data provided by Great Britain.

Table 3

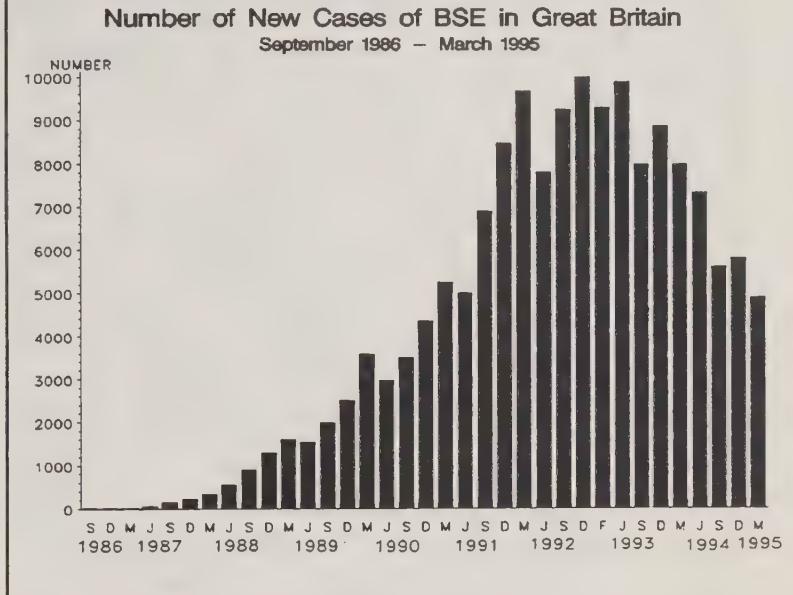


Figure 14

United States Surveillance:

Surveillance for BSE in the U.S. continues with an additional 172 brains received by the National Veterinary Services Laboratories (NVSL) for examination from December 30, 1994, to April 1, 1995 (Figure 15). This brings the total number of brains which have been submitted for examination to 2,158, as of April 1, 1995.

No evidence of BSE has been found in any U.S. cattle.

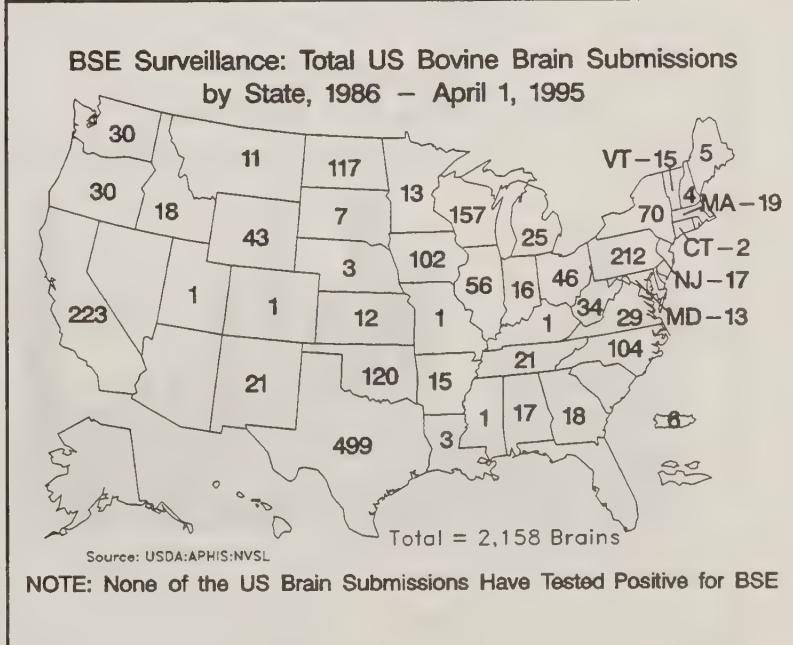


Figure 15

Equine Viral Arteritis (EVA)

Criteria: Virus neutralization (1:4 titer) and no history of vaccination, or virus isolation from tissue or semen.

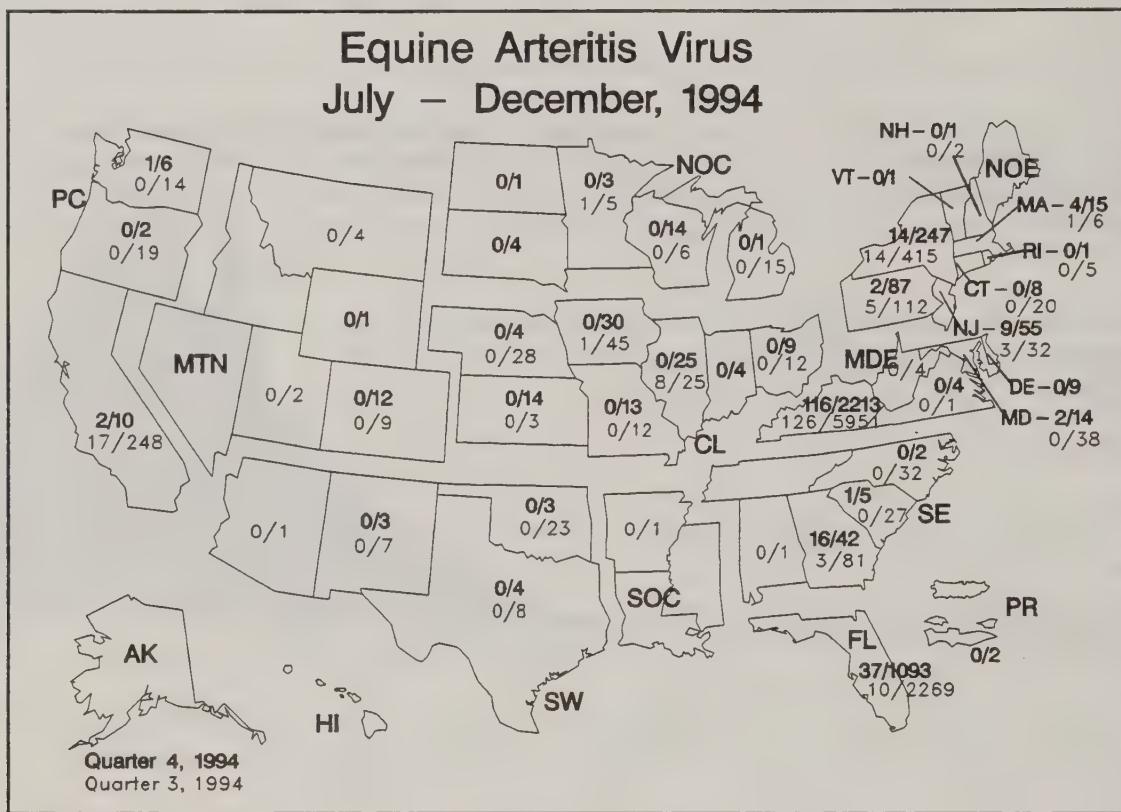


Figure 16

There appears to be a seasonal trend with an increase in percent positive during the winter months of each year (Figure 17). While it is still to early to say for sure, a pattern may be emerging.

An apparent decrease in the number of positives for the Pacific region is partially due to a missing report from one laboratory for this quarter (Figure 18).

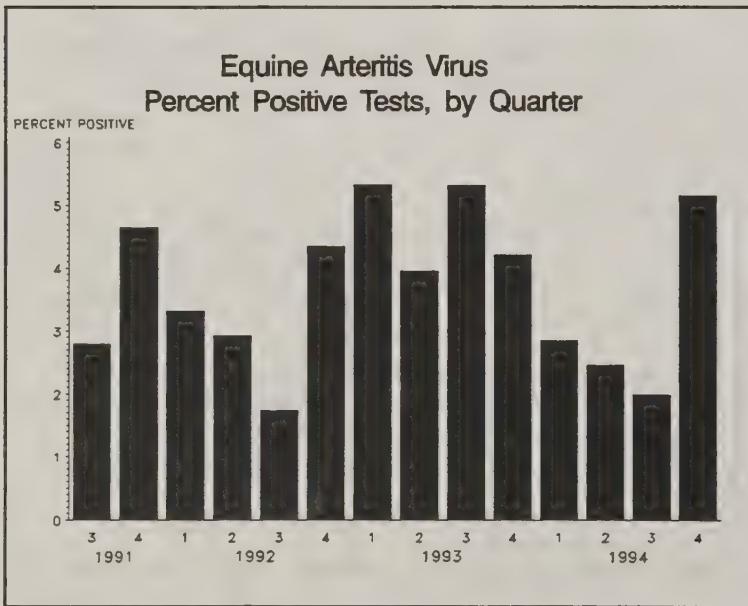


Figure 17

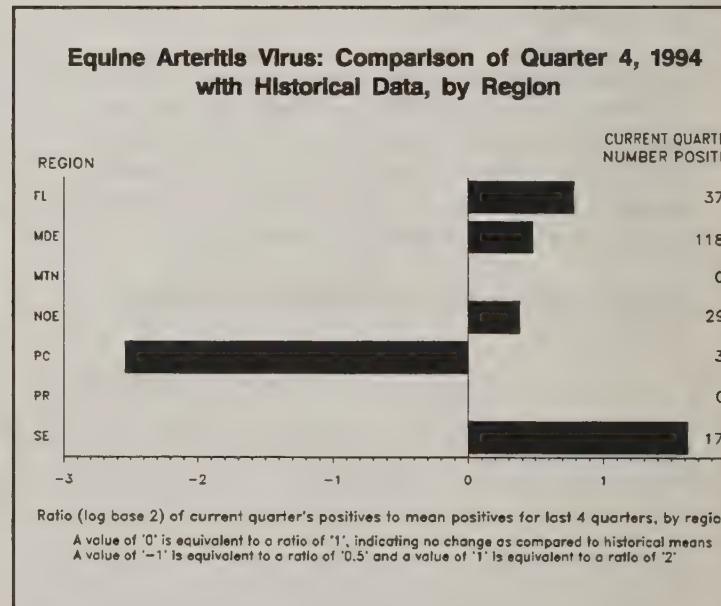


Figure 18

Note: States with no values are nonreporting States.

Equine Encephalomyelitis

Sources: Dr. A. D. Alstad
 Diagnostic Virology Laboratory
 National Veterinary Services Laboratories
 (515) 239-8551

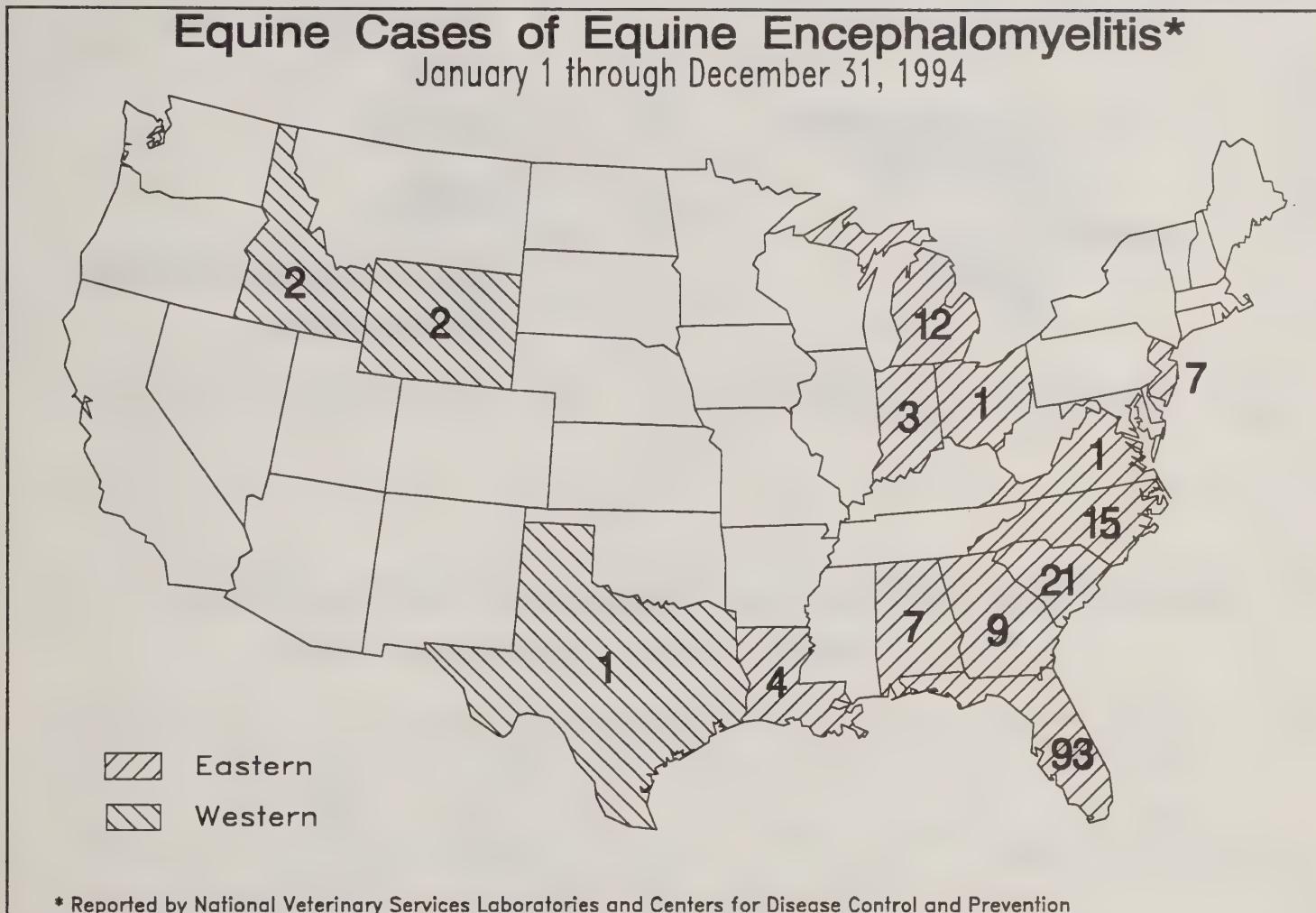


Figure 19

From January 1 through December 31, 1994, there were 340 U.S. and one foreign submissions for equine encephalitis at the National Veterinary Services Laboratories (NVSL). Of the domestic submissions, there were 252 horses, 81 avian (the majority were ratites), and eight other species including cattle, goats, pigs, elk, and a zebra.

Thirty-six horses, four emu, two pheasant, and one duck tested positive for eastern equine encephalomyelitis (EEE), and four horses, two emu, and one pigeon tested positive for western equine encephalomyelitis (WEE) at the NVSL for the year.

During the same time period, there were 137 additional cases of EEE in horses, 13 in emu, three in dogs, two in geese, two in pigs, and one in a deer and one additional case of WEE in a horse reported to the Centers for Disease Control and Prevention (CDC) from public health and State diagnostic laboratories.

Figure 19 shows the number and location of the 173 equine cases of EEE and the five equine cases of WEE reported by both NVSL and CDC.

Louisiana reported one human case of EEE and Wyoming reported two human cases of WEE in 1994.

Porcine Reproductive and Respiratory Syndrome (PRRS)

Criteria: Virus isolation or antibody detection by indirect fluorescent antibody.

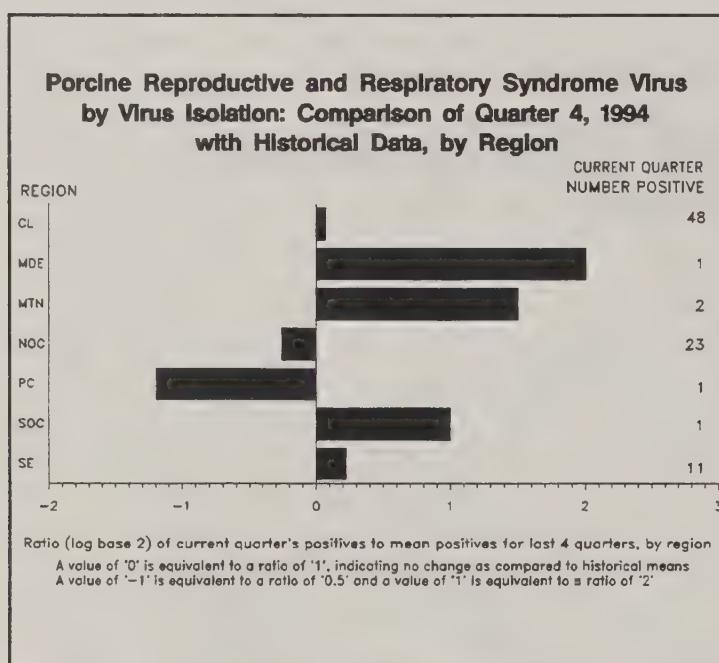


Figure 20

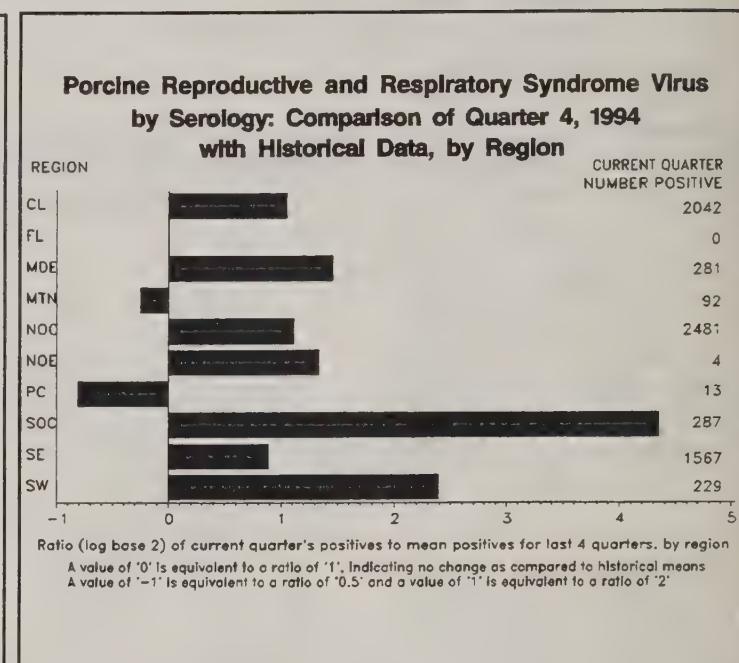


Figure 21

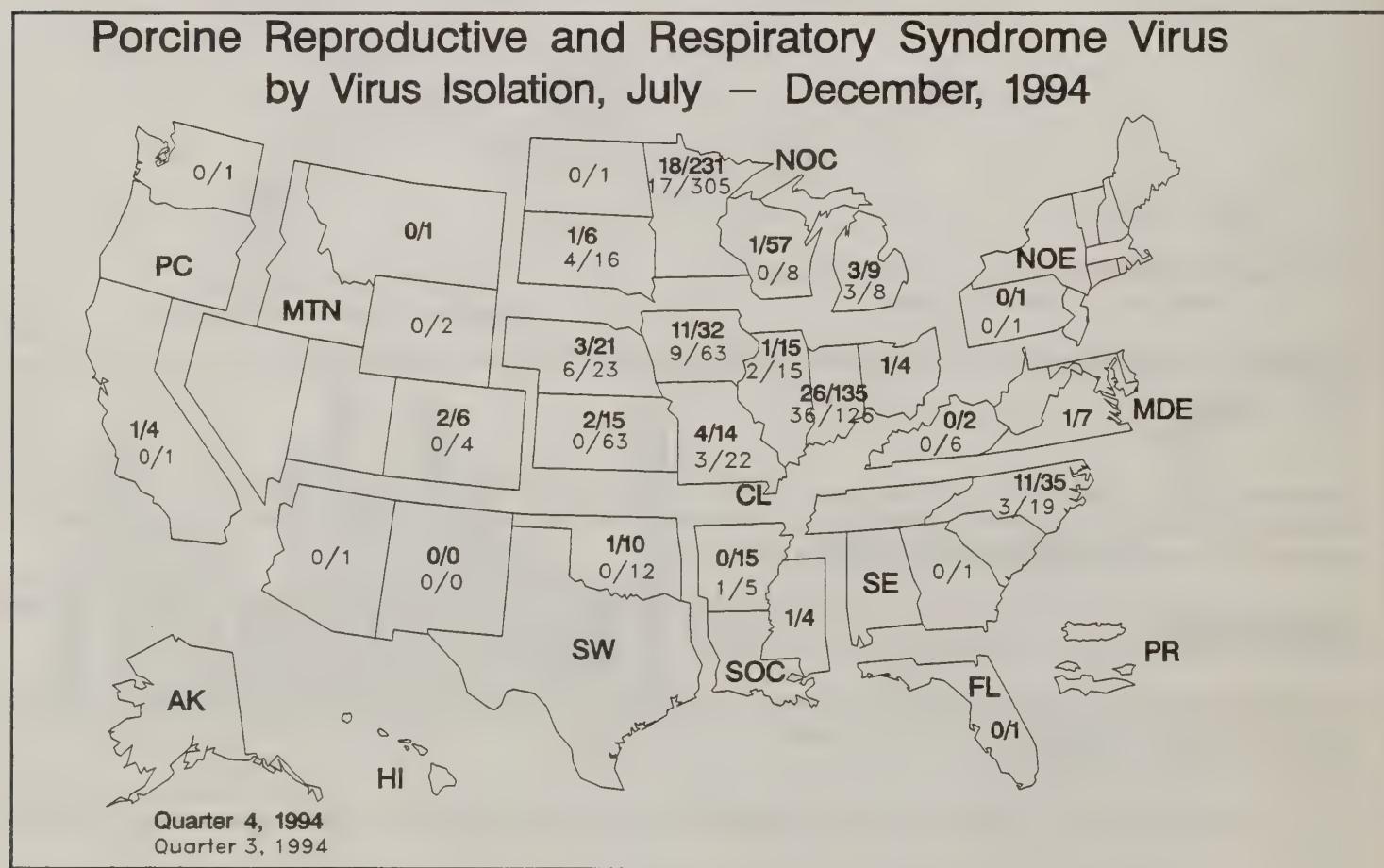


Figure 22

Porcine Reproductive and Respiratory Syndrome Virus by Serology, July – December, 1994

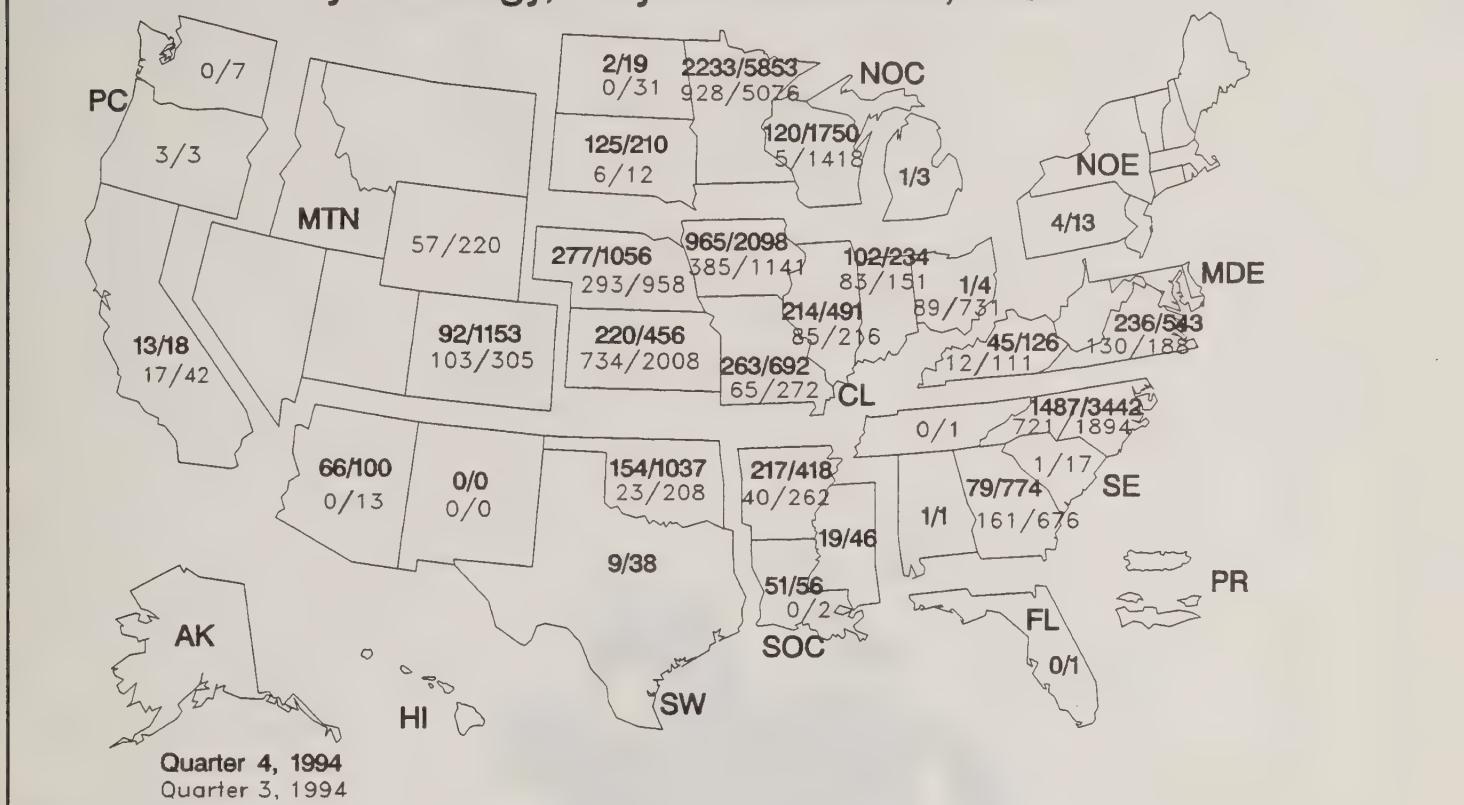


Figure 23

Virus isolation for porcine reproductive and respiratory syndrome (PRRS) resulted in 88 positives out of 625 tests run (14.1 percent) for the fourth quarter of 1994. Figure 20 shows the ratio of number positive for quarter four 1994 compared to the average number positive for the previous four quarters for isolation results.

IFA serology testing for PRRS resulted in 6,996 positives out of 20,632 tests run (33.9 percent) for the fourth quarter of 1994. Figure 21 shows the ratio comparison for serology results. The apparent increase in the South-Central region is partially due to increased test reporting for all three States.

Figures 22 and 23 show the results of virus isolation and IFA serology, respectively, by State for the third and fourth quarters of 1994.

Note: States with no values are nonreporting States.



II. Selected Etiologic Agents Associated with Bovine Abortion

Section II characterizes selected agents associated with bovine abortions (aborted fetuses or congenitally-infected calves) from accessions reported to veterinary diagnostic laboratories.

Neospora spp. 18

Key to Figures in this Section:

- Deviation bar charts show the base 2 logarithmic transformation of the ratio of positive tests for the current quarter to the mean positive tests for the previous four quarters. A value of '0' is equivalent to a ratio of '1' indicating no change compared to historical values. Each incremental unit change indicates a doubling (positive change) or halving (negative change) of the present value compared to the mean of the historical values.
- Maps of conditions reported by participating laboratories show total number of positive accessions over total number of accessions run, per State, for the current and previous quarter.
- In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.
- Data are presented by region or State of specimen origin and quarter of the calendar year for specimen submission.
- See map on inside front cover for regions.

***Neospora* spp.**

Criteria: Histopathology and detection of antigen by immunohistochemistry, or detection of antibody in aborted fetus by indirect fluorescent antibody.

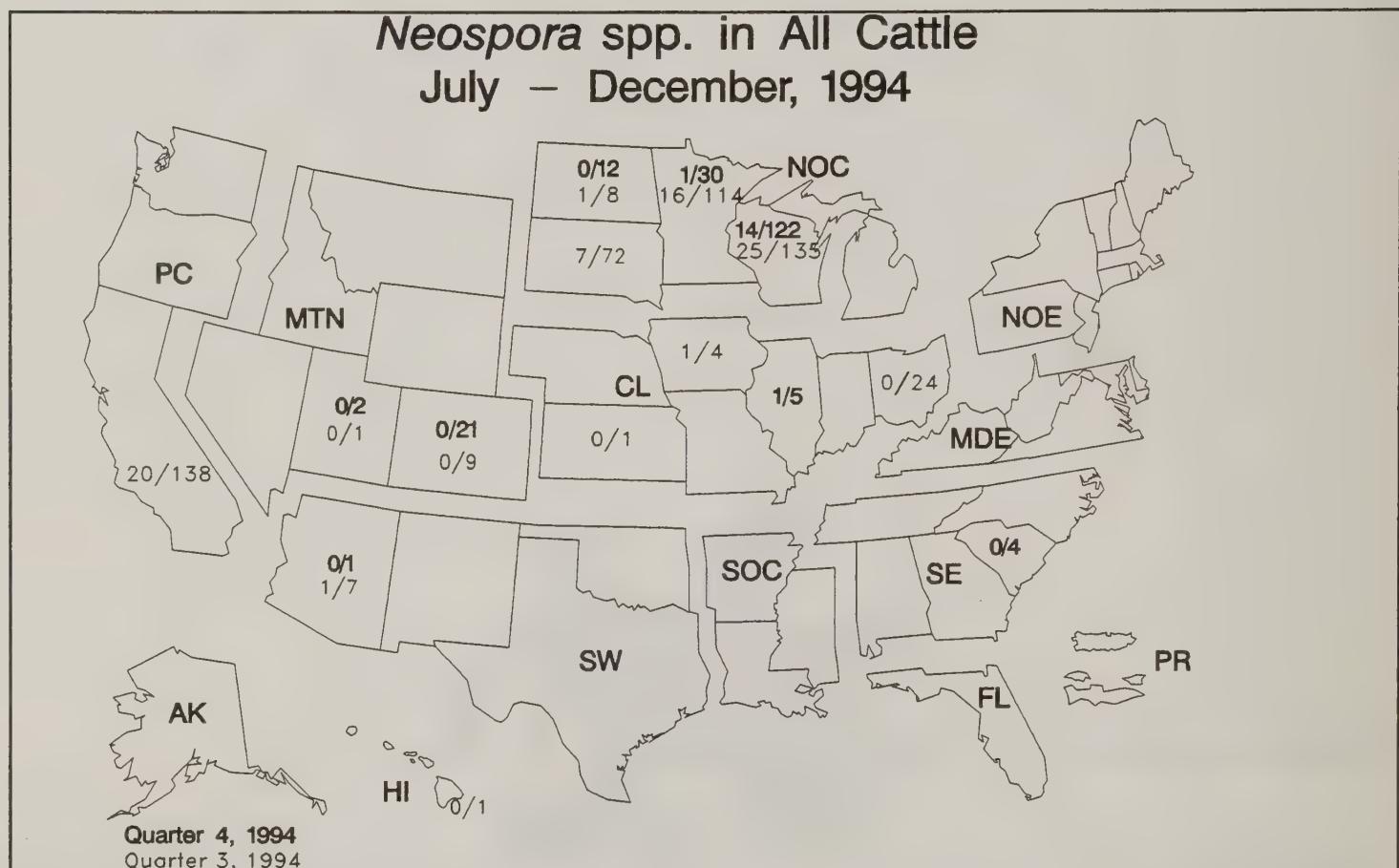


Figure 24

Figure 24 shows the distribution of test results for *Neospora* spp. for the third and fourth quarters of 1994 by State. For all cattle, 16/197 (8.1 percent) accessions tested for *Neospora* spp. were positive during the fourth quarter of 1994.

Note: States with no values are nonreporting States.

This section contains news items and articles of potential interest to diagnostic laboratories. Submissions from nonparticipating laboratories are welcome.

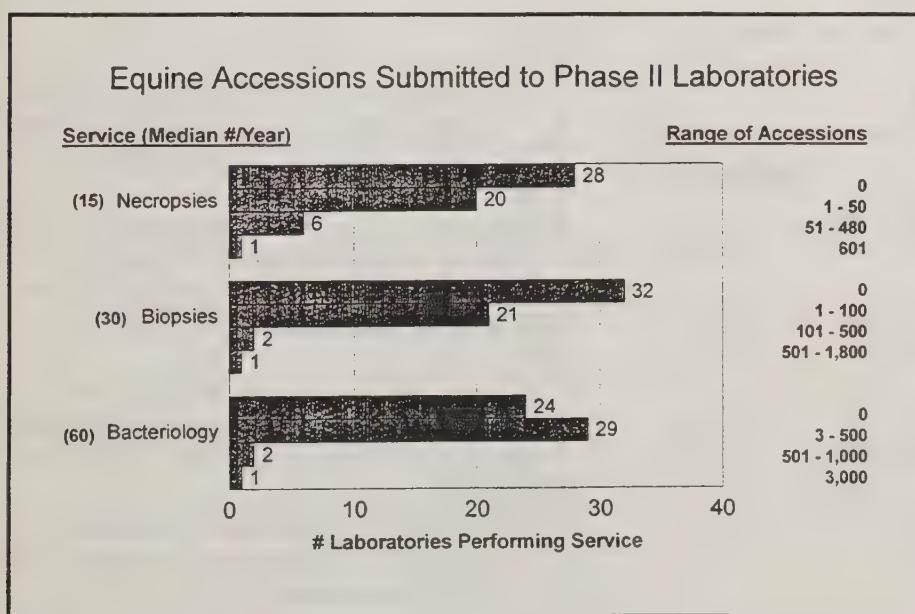
Summary of Equine Accession Study Phase II

Staff at the U.S. Department of Agriculture Centers for Epidemiology and Animal Health (CEAH) developed a questionnaire to determine the type, number, and charges for equine accessions submitted to diagnostic laboratories. The questionnaire was initially completed by 23 of 26 laboratories contributing to the Veterinary Diagnostic Laboratory Reporting System (VDLRS) for the DxMONITOR Animal Health Report (phase I). A summary of phase I findings appeared in the Winter 1994 DxMONITOR. Subsequently, questionnaires were mailed to laboratories listed in the 1992 Directory of Diagnostic Laboratories (USDA:APHIS:VS, National Veterinary Services Laboratories) as performing equine diagnostic work (phase II). The 74 State and 37 private laboratories contacted in phase II did not include those involved in phase I.

A total of 65 phase II questionnaires were returned. Ten additional State laboratories were contacted by telephone and completed abbreviated questionnaires. The State laboratories had an overall return rate of 76 percent (56/74), while the private laboratory return rate was 51 percent (19/37). Of those, 11 State and three private laboratories indicated that they did not perform equine diagnostic work. In summary, a total of 61 questionnaires provided useable data. However, none of the questions were completed by all respondents, so denominators for frequency data will vary in this report.

The majority of laboratories recorded the following information regarding equine accessions: owner name (56/58), accession's State of origin (52/58), veterinarian name (56/58), species (52/57), breed (44/56), age (38/48), and test results (45/46). Laboratories less frequently recorded medical history (28/46), treatment and vaccination history (18/44), and diagnosis (27/44).

Method of recording information regarding accessions (choices were hard copy only, computer only, or computer along with hard copy) most frequently consisted of computer with or without hard copy for: owner name (37/59), origin of accession (33/56), veterinarian name (39/60), species (34/54), age (21/40), test results (30/49), and diagnosis (21/31). Breed (20/46), medical history (10/29), and treatment and vaccination history (6/20) were less frequently maintained electronically. These data show that many phase II laboratories maintained information as hard copy only, thus making retrieval of data a time-consuming process. Only 36 percent (21/58) of the laboratories indicated that a specific equine diagnosis would be readily retrievable from the data base. When asked if two serum samples submitted separately from the same horse could be readily linked (acute and convalescent samples), 62.2 percent (28/45) responded "yes."



Responses of participants regarding the average annual number of various types of equine accessions considering the years 1991 through 1993 are summarized below and shown in Figures 25 and 26. Medians are based on average annual number of each type of accession for laboratories which reported they performed the test.

- Of the 27 laboratories performing a total of 1,833 equine necropsies, the median annual number performed was 15 with a range of one to 601 per year.
- Twenty-four laboratories reported performing 3,350 equine biopsy evaluations per year with an annual median of 30 and a range of one to 1,800.

- The 32 laboratories which performed bacteriology reported a median of 60 equine bacterial cultures per year. The range was from three to 3,000 with a total of 7,682.
- A total of 872 equine viral isolations were performed by 14 laboratories. The median annual number of tests was 11 with a range of two to 350.
- Forty laboratories performed 211,869 equine infectious anemia (EIA) tests. The median number of tests was 2,600 with a range of five to 47,160.
- Of the 28 laboratories which performed other serologic testing (excluding EIA), the median annual number of tests was 76 with a range of one to 22,748 and a total of 29,804.

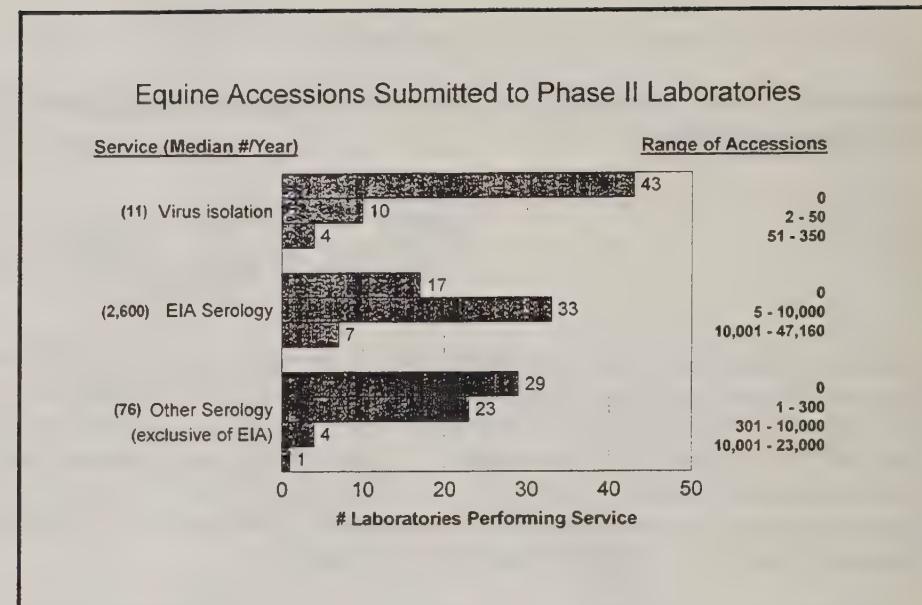


Figure 26

- Twenty-six laboratories performed 2,141 equine parasitology tests. The median annual number of tests was 30 with a range of one to 600 (not shown in Figures 25 or 26).

Approximately one-half of all responding laboratories indicated that they offered clinical pathology (25/52) and toxicology (20/54), while less than 25 percent performed equine endocrinology (10/44), vitamin and mineral analysis (11/51), immunologic tests (14/51), and drug testing (5/50).

The majority of laboratories processed out-of-State equine accessions (83.1 percent, 49/59).

Results on laboratory charges are summarized below and in Figures 27 and 28. Medians are based on average charge for each type of accession for laboratories which reported that they performed the test and a charge.

- The median for the average charge for an equine necropsy was \$40.00. Twenty-three laboratories performed the procedure and indicated a charge with a range of \$20.00 to \$500.00.

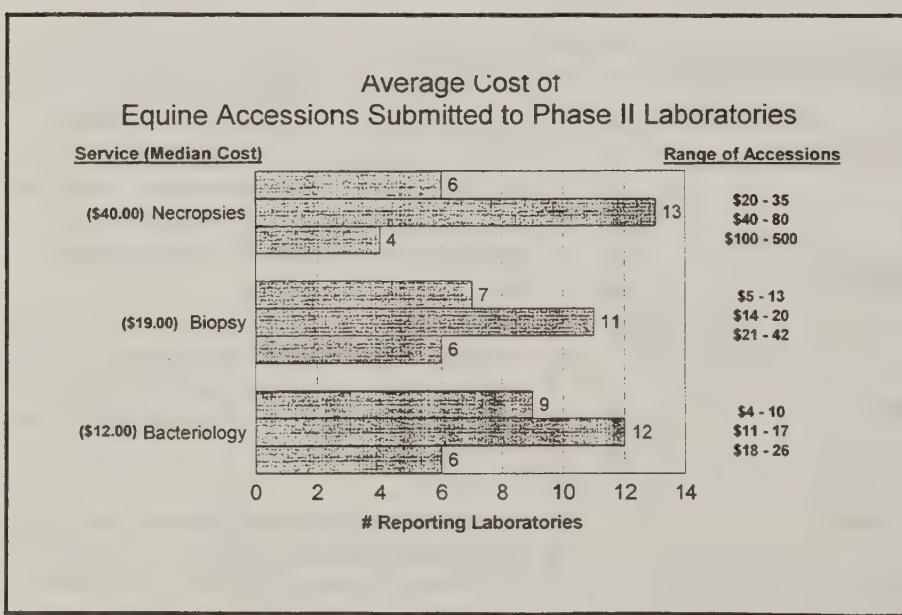


Figure 27

- The median for the average charge for biopsy evaluation for 24 responding laboratories was \$19.00 with a range of \$5.00 to \$42.00.
- Average equine bacteriology cost had a median of \$12.00 for the 27 laboratories which performed the procedure and indicated a charge. The range was \$4.00 to \$26.00.
- The median for the average equine virus isolation charge for 14 responding laboratories was \$15.00 with a range of \$10.00 to \$30.00.
- The median for the average EIA serology charge for the 33 responding laboratories was \$5.00. The reported range was \$2.50 to \$27.50.

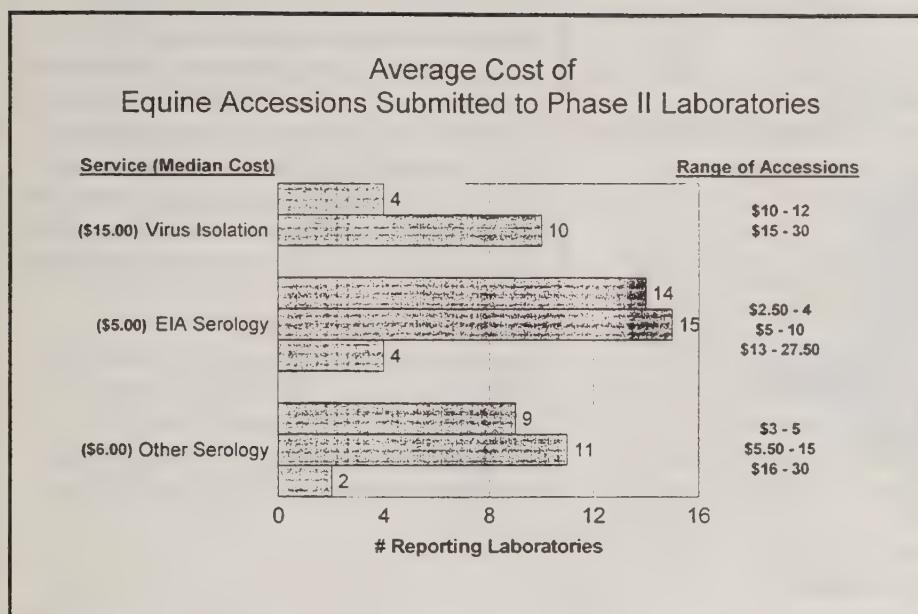


Figure 28

- The median for the average charge for other serology (excluding EIA) for 22 responding laboratories was \$6.00 with a range of \$3.00 to \$30.00.

- Average parasitology charges had a median of \$7.00 for 23 laboratories indicating a charge. The range was \$3.00 to \$15.00 (not shown in Figures 27 or 28).

Twenty-six respondents indicated the major means of disposal of equine carcasses. Of these laboratories, 18 utilized renderers and eight utilized incineration as the major means of disposal.

Only 38 percent (21/55) of the total respondents felt that their equine accessions reflected the horse health and disease status in the State. Common reasons given for the nonrepresentation included: the laboratory was located far from the State's horse industry

(8/55), available laboratory services were not those requested by the horse industry (9/55), lack of personnel expertise regarding equine diseases (5/55), and lack of contact with the horse industry (6/55). Other reasons listed once only, unless otherwise indicated, included: branch laboratory which receives few equine samples, do not have facilities to do equine accessions, not a full service laboratory, do not offer most equine services as there is a small equine population in the area, lack of interest by horse owners to submit diagnostic work, most tests are forwarded to the main State veterinary laboratory, laboratory is utilized only to validate results from tests that are difficult to evaluate, multiple laboratories in the State do equine diagnostic work and compete for submissions, primarily perform tests on humans, do not perform equine necropsies so do not feel the laboratory reflects the overall equine health and disease status, and only offer EIA testing (2).

Twenty-nine of 43 laboratories expressed an interest in equine quarterly monitoring on diagnostic laboratory information. The most common reasons for monitoring were regulatory importance of the disease, zoonotic importance of the disease, frequent diagnosis in the laboratory, frequently requested test, and to determine incidence differences by region. Twenty-one laboratories mentioned EIA as the most important disease for quarterly monitoring. An additional 45 diseases/conditions were listed, those which were repeatedly listed

included: viral encephalitides, salmonellosis, rabies, reproductive problems, herpesvirus infection, abortion, Streptococcal infection, colic, equine viral arteritis, Potomac Horse Fever, influenza, Leptospirosis, respiratory infection, and parasites.

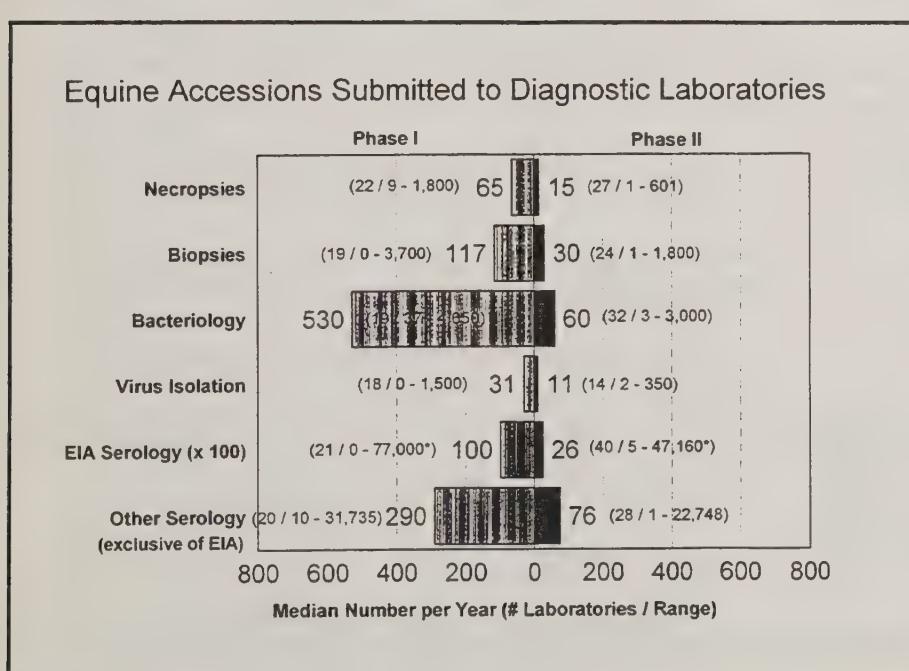


Figure 29

A comparison of the annual number of tests performed by the phase I laboratories with those in phase II showed the phase I laboratories consistently performed more tests per year based on the median and total number of each accession type (Figure 29). Phase I laboratories contributed at least 60 percent of the total number of annual accessions for each type (Figure 30). Only a limited number of phase II laboratories had an annual number of each type of accession higher than the median for phase I laboratories. Thus, it appears that laboratories currently contributing to the VDLRS capture over 60 percent of the total annual number of each type of equine accession, based on responses to both phases of this study.

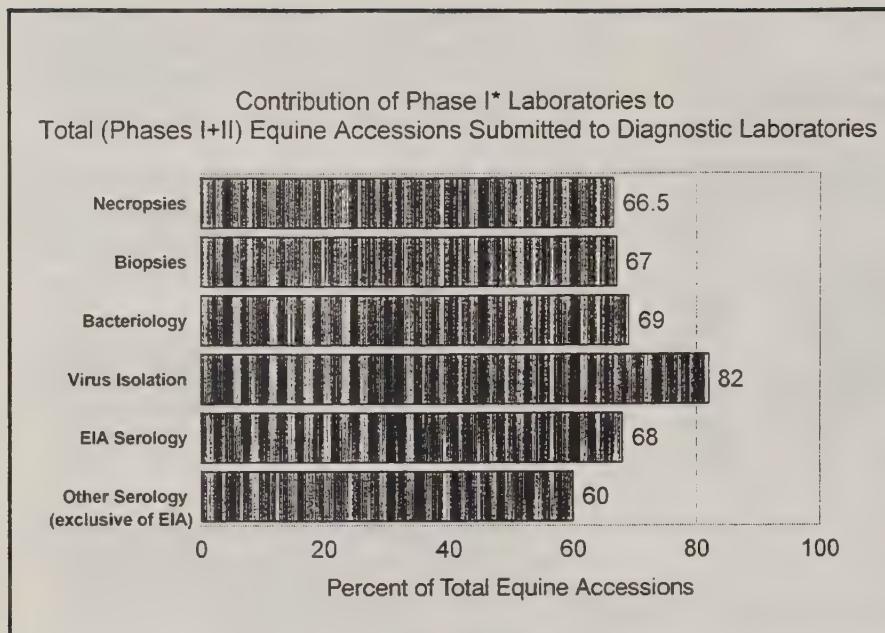


Figure 30

Free Data Submission Software Available

The DxMONITOR Data Submission System (DDSS) is available free of charge to any laboratory interested in participating in the Veterinary Diagnostic Laboratory Reporting System (VDLRS).

To use the DDSS, data must first be captured by a laboratory in whatever manner works best for that particular laboratory. The summary totals of those data are then entered into a data entry screen which is provided as part of the DDSS. A computer file is automatically created for use in transferring the data. A reference guide leads the user through this process.

Because the system was written within a software package called "Epi Info," a copy of this program and a user's guide are also included. Epi Info was developed by the Centers for Disease Control and Prevention and the World Health Organization. It has many capabilities including data analysis, word processing, statistics, etc. Please contact the address on the inside front cover of this issue for more information about the DDSS.

Lab Notes and DxNEWS Article Submissions are Encouraged

Readers of the DxMONITOR Animal Health Report are encouraged to submit items suitable for the "Lab Notes" and the "DxNEWS." All articles should be typed double spaced. Photos/artwork should be camera ready copy. If possible, please provide your article on diskette and indicate what type of software was used to create/store the file (i.e., WordPerfect, Word Star). Send submissions to the address on the inside front cover of this issue.

Five phase II laboratories repeatedly had a higher annual number of accessions than the median for phase I laboratories, an indication that their participation in the DxMONITOR would improve the report's representation of equine data. Nonresponding phase II laboratories may have had accession numbers higher or lower than the phase I median as well, but there is no way to measure this theory based on results of this study.

[Contact: Dr. Nora Wineland, USDA:APHIS:VS, Centers for Epidemiology and Animal Health, Fort Collins, CO, (970) 490-7800, or Dr. Josie Traub-Dargatz, Veterinary Teaching Hospital, Colorado State University, Fort Collins, CO, (970) 491-0302.]

Materials available from the VDLRS are listed below. Send this clip-out order form to:

Veterinary Diagnostic Laboratory Reporting System
Centers for Epidemiology and Animal Health
USDA:APHIS:VS
ATTN: DxMONITOR
555 South Howes, Suite 200
Fort Collins, CO 80521-2586

Quantity	<input type="text"/> DxMONITOR Animal Health Report* <i>(Quarterly report of VDLRS data)</i>
<hr/>	
Introduction to the VDLRS <i>(An informational brochure)</i>	
<hr/>	
Report of the 1991 DxMONITOR Committee Meeting (August 1991)	

*The most recent issue of the DxMONITOR will be sent.
If you want past issues, please call (970) 490-7800.

Name: _____

Affiliation: _____

Street: _____

City/State: _____ Zip: _____

Please add my name to the mailing list for the DxMONITOR Animal Health Report.

Appendix

This section provides tables displaying the most recently reported diagnostic laboratory data.

Bovine Leukosis Virus	24
Paratuberculosis by Culture, Histopathology, or DNA Probe	25
<i>M. paratuberculosis</i> by Serology	26
Equine Viral Arteritis	27
Porcine Reproductive & Respiratory Syndrome Virus	27
<i>Neospora</i> spp.	28

Key to Tables in this Section:

- **Data are presented by laboratory of specimen origin and quarter of specimen submission.** Because individuals within a State may utilize outside laboratories in addition to their own, the State numbers presented in the State maps may not agree with the numbers presented by reporting laboratory in the appendix.
- **Values represent the number of positive tests or accessions (P) and the number of tests performed or accessions tested (T).**
- **Values reported in the "TOT" (total) category represent all tests performed during the year.** This category may include some tests for which a month of specimen submission was not known. Therefore, the sum of the quarterly values may not be equal to the "TOT" values.
- **Data totals (positives and total tests) shown for "All Calves" include specimens of unknown bovine class and those from veal calves, in addition to specimens from beef or dairy calves.** Thus, the sums of dairy calf totals and beef calf totals do not always equal the totals shown for all calves.
- **Values reported for all diagnoses/agents are for quarters in 1993 and 1994.**
- **In some cases, the reported total number of tests performed is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **Abbreviations for laboratories used in the tables are:**

ARVDL = Arkansas

GAATH = GA, Athens

KYMSU = KY, Hopkinsville

NDVDL = North Dakota

NYVDL = New York

PAVL = TX, Austin

TNVDL = Tennessee

WYVDL = Wyoming

CAVDL = California

GATFT = GA, Tifton

KYVDL = KY, Lexington

NEVDL = Nebraska

OHVDL = Ohio

PRVDL = Puerto Rico

TXVDL = TX, College Station

COVDL = Colorado

IAVDL = Iowa

MNDVL = Minnesota

NMVDL = New Mexico

OKVDL = Oklahoma

SCVDL = South Carolina

VAVDL = Virginia

FLVDL = Florida

INVDL = Indiana

MOVDL = Missouri

NVSL = National

ORVDL = Oregon

SDVDL = South Dakota

WIVDL = Wisconsin

Bovine Leukosis Virus

Lab		Beef				Dairy				Total				TOT	
		---- Quarter ----				---- Quarter ----				---- Quarter ----					
		1/94	2/94	3/94	4/94	1/94	2/94	3/94	4/94	1/94	2/94	3/94	4/94		
CAVDL	P	21	10	0		31	114	83	209	406	144	93	234	471	
	T	43	15	20		78	546	319	562	1427	609	334	672	1615	
COVDL	P		0	2	2		43	19	62		47	21	68		
	T		6	40	46		145	217	362		191	257	448		
FLVDL	P	0	14	4	6	24	14	28	15	136	14	42	19	160	
	T	39	108	35	47	229	23	65	26	283	62	173	61	512	
GAATH	P									44	98	14	12	168	
	T									74	202	52	69	397	
GATFT	P									119	89	76	63	347	
	T									264	321	194	191	970	
INVDL	P	17	28	32	33	110	19		12	31	36	28	44	141	
	T	37	65	58	86	246	38		23	61	75	65	81	307	
KYMSU	P									77	35	56	86	254	
	T									197	240	119	206	762	
KYVDL	P	12		9	5	26	19		164	39	222	34	182	267	
	T	70		33	41	144	38		254	137	429	141	320	650	
MNVDL	P									119	71	83	65	338	
	T									314	271	267	284	1136	
MOVDL	P					15	15			16	16	45	42	160	
	T					34	34			30	30	68	71	286	
NDVDL	P									44	17	28	10	99	
	T									133	53	62	84	332	
NMVDL	P									0	1	0	0	1	
	T									0	2	2	0	4	
NVSL	P									0	2	1	6	9	
	T									6	27	24	8	65	
NYVDL	P									351	333	616	637	1937	
	T									2276	3112	2779	3800	11967	
OHVDL	P									626	505	490		1621	
	T									3217	2855	2190		8262	
OKVDL	P	25	15	9	45	94	15	9	72	11	107	91	94	280	
	T	69	46	23	93	231	25	16	96	15	152	258	140	604	
SDVDL	P									223		158		381	
	T									852		892		1744	
TNVDL	P									140	199	115		454	
	T									331	638	310		1279	
TXVDL	P									37	322	270	157	786	
	T									530	2924	3414	1795	8663	
VAVDL	P	27	75	10	17	129	2	2	0	0	4	29	77	133	
	T	60	515	53	27	655	8	3	4	3	18	68	518	673	

Paratuberculosis by Culture, Histopathology, or DNA Probe

Lab	Bovine				Ovine				Caprine							
	---- Quarter ----				---- Quarter ----				---- Quarter ----							
	4/93	1/94	2/94	3/94	TOT	4/93	1/94	2/94	3/94	TOT	4/93	1/94	2/94	3/94	TOT	
CAVDL	P	3	5	1		9	0			0	1				1	
	T	16	114	9	139	1	1			1	5				5	
COVDL	P			1	3	4										
	T			167	164	331										
FLVDL	P	17	37	37	12	103					0	1	0	1	1	
	T	32	85	67	86	270					0	7	20	27		
INVDL	P	3			1	4										
	T	3			1	4										
KYMSU	P	29	32			61										
	T	82	72			154										
KYVDL	P	23			0	23										
	T	60			20	80										
MNVDL	P	56	28	15	34	133		0		0				1	1	
	T	121	100	50	98	369		1		1				3	3	
MOVDL	P	5	40	9	9	63										
	T	54	44	30	24	152										
NDVDL	P	1	1	2	2	6										
	T	36	1	2	2	41										
NVSL	P	1	5	6	4	16					0	0			0	
	T	4	13	11	13	41					1	1			2	
NYVDL	P	114	103	107	304	628	0	0		0	0	0	1	2	3	
	T	924	1304	767	1146	4141	6	2		9	17	10	18	11	4	43
OHVDL	P	56	65	95		216	0	0	0		0	0	0	3	3	
	T	481	1038	1180		2699	1	3	4		8	3	29	8	40	
SDVDL	P	17			11	28		0		0						
	T	38			48	86		1		1						
VAVDL	P	1	1	5	0	7										
	T	5	5	8	1	19										
WIVDL	P	45	60	57	125	287					0	2	0	0	2	
	T	911	346	464	295	2016					1	51	11	1	64	

M. paratuberculosis by Serology

Lab	Bovine				Ovine				Caprine					
	---- Quarter ----				---- Quarter ----				---- Quarter ----					
	1/94	2/94	3/94	4/94	TOT	1/94	2/94	3/94	4/94	TOT	1/94	2/94	3/94	4/94
CAVDL	P	9	13	12	34	0	3	1		4	1	2	0	3
	T	71	154	63	288	4	50	30		84	3	8	25	36
GAATH	P	4	5	4	9	22								
	T	20	33	23	62	138								
GATFT	P	4	2	6	0	12								
	T	23	17	17	23	80								
INVDL	P	8	15	10	28	61							0	0
	T	31	61	47	62	201							1	1
KYMSU	P		27	29		56								
	T		54	151		205								
KYVDL	P	6		5		11								
	T	253		124		377								
MNVDL	P	71	92	111	147	421								
	T	174	221	309	508	1212								
NDVDL	P	25	9	21	5	60								
	T	287	59	102	104	552								
NMVDL	P	0	3	0	0	3								
	T	0	9	0	1	10								
NYVDL	P	57	78	104	130	369	0	2	7	1	10	16	4	24
	T	357	195	279	353	1184	4	4	27	14	49	165	72	322
OHVDL	P	31	180	172		383								
	T	538	1802	2122		4462								
OKVDL	P	11	3	6	12	32					2	2		
	T	49	51	39	49	188					8	8		
PAVL	P	7	71	39	8	125	1	3	3	1	8	18	42	1
	T	15	281	231	72	599	2	59	67	32	160	373	981	24
TNVDL	P	13	10	12		35								
	T	240	166	205		611								
VAVDL	P	36	24	16	4	80								
	T	90	117	59	14	280								
WIVDL	P	230	256	211	169	866	0	4	0	0	4	2	1	14
	T	461	536	436	345	1778	5	7	1	1	14	7	11	26

Equine Viral Arteritis

Lab	Quarter				
	1/94	2/94	3/94	4/94	TOT
CAVDL	P 14	4	17		35
	T 380	323	261		964
COVDL	P		4	0	4
	T		39	19	58
FLVDL	P 18	22	10	35	85
	T 2347	1238	2268	1081	6934
GAATH	P 0	0	2	16	18
	T 42	21	45	35	143
GATFT	P 0	0	1	0	1
	T 14	13	34	6	67
KYVDL	P 56		126	115	297
	T 957		5950	2193	9100
NMVDL	P 0	0	0	0	0
	T 1	0	4	3	8
NVSL	P 8	14	1	4	27
	T 156	124	150	177	607
NYVDL	P 28	10	28	34	100
	T 443	304	732	448	1927
VAVDL	P 0	0			0
	T 14	21			35

Porcine Reproductive and Respiratory Syndrome Virus
Indirect Fluorescent Antibody

Lab	Quarter				
	1/94	2/94	3/94	4/94	TOT
CAVDL	P 23	3	2		28
	T 31	3	12		46
GAATH	P 106	118	153	21	398
	T 684	476	544	361	2065
GATFT	P		7	44	51
	T		130	331	461
INVDL	P	81	90	107	278
	T	134	172	208	514
MNVDL	P 3149	2454	2709	6495	14807
	T 9734	10516	12653	18395	51298
MOVDL	P 18	11	18	22	69
	T 69	53	73	108	303
NMVDL	P 0	0	0	0	0
	T 1	0	0	0	1
NVSL	P 327	732	873	295	2227
	T 933	1249	1540	1131	4853
OHVDL	P 103	96	89		288
	T 583	736	731		2050
OKVDL	P			12	12
	T			47	47
SDVDL	P 64				64
	T 1517				1517
WIVDL	P 5	0	0	5	5
	T 105	108	51		264

Porcine Reproductive and Respiratory Syndrome Virus
Virus Isolation

Lab	Quarter				
	1/94	2/94	3/94	4/94	TOT
INVDL	P 70	32	44	34	180
	T 212	107	153	169	641
MNVDL	P 53	20	23	54	150
	T 515	388	523	456	1882
NMVDL	P 0	0	0	0	0
	T 0	0	0	0	0
SDVDL	P	17		17	
	T	27		27	

Neospora spp.

Lab	Beef				Dairy				Total						
	---- Quarter ----				---- Quarter ----				---- Quarter ----						
	1/94	2/94	3/94	4/94	TOT	1/94	2/94	3/94	4/94	TOT	1/94	2/94	3/94	4/94	TOT
CAVDL	P	0	0	0	0	18	12	17		47	18	12	22		52
	T	22	7	57	86	69	41	71		181	99	51	146		296
COVDL	P	0	0	0	0	0	0	0		0	0	0	0		0
	T	1	6	7		12	11	23			13	24	37		
MNVDL	P	1	0	1	2	8	8	14	1	31	10	8	16	1	35
	T	31	12	4	49	107	107	110	25	349	150	126	139	29	444
MOVDL	P										1				1
	T										1				1
NDVDL	P										1	1	2	0	4
	T										155	23	19	16	213
NYVDL	P										2				2
	T										17				17
OHVDL	P										0	1	0		1
	T										31	34	23		88
SDVDL	P											7			7
	T											71			71
VAVDL	P					2					2		2		2
	T					3					3		3		3
WIVDL	P										1	4	24	15	44
	T										60	55	103	128	346



USDA:APHIS:VS
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Fort Collins, CO 80521-2586